SAF-B03-018 ERDF Groundwater Well Samples FINAL DATA PACKAGE

MAIL COMPLETE COPY OF DATA PACKAGE TO:

Tom Lazarski

H9-03

Rich Weiss

H9-01

COMMENTS: (PLEASE INCLUDE THE FOLLOWING ON THE FAX COVER SHEET)

SDG H2724

SAF-B03-018

Rad only Chem only X Rad & Chem

X Complete

Partial

EDMC



November 12, 2004

Ms. Joan Kessner Bechtel Hanford Inc. 3190 George Washington Way MSIN H9-02 Richland, WA 99352

Reference:

P.O. #630

Eberline Services R4-09-124-7094, SDG H2724

Dear Ms. Kessner:

Enclosed is the data report for six water samples designated under SAF No. B03-018 received at Eberline Services on September 16, 2004. The samples were analyzed according to the accompanying chain-of-custody documents.

Please call if you have any questions concerning this report.

Sincerely,

Melissa C. Mannion

Senior Program Manager

men Man-

MCM/mbr

Enclosure: Data Package

Analytical Services
2030 Wright Average
P.O. Box 4040
Richmond, California 94804-0040
(510) 235-2633 Fax (510) 235-04-38
Toll Free (800) 841-54-87
www.eberlineservices.com

Page 1 of 2

1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H2724 was composed of six water samples designated under SAF No. B03-018 with a Project Designation of: ERDF Sept 2004.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to BHI via e-mail on November 12, 2004. The electronic data deliverable (EDD) was transmitted to BHI via e-mail on November 15, 2004.

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Gross Beta Analyses

No problems were encountered during the course of the analyses.

2.2 Total Radium Analyses

No problems were encountered during the course of the analyses.

2.3 Carbon-14 Analyses

No problems were encountered during the course of the analyses.

2.4 Technetium-99 Analyses

No problems were encountered during the course of the analyses.

2.5 lodine-129 Analyses

No problems were encountered during the course of the analyses.

2.6 Total Uranium Analyses

There was contamination in the method blank (0.015 μ g/L). The activity was less than 2-times the RDL (0.1 μ g/L) for total uranium.

No other problems were encountered during the course of the analyses.

Case Narrative

Page 2 of 2

Case Narrative Certification Statement

"I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data obtained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."

Melissa C. Mannion

Senior Program Manager

Date

E B E R L I N E S E R V I C E S / R I C H M O N D SAMPLE DELIVERY GROUP H2724

SDG 7094 Contact <u>Melissa C. Mannion</u> Client <u>Hanford</u>
Contract <u>No. 630</u>
Case no <u>SDG H2724</u>

SUMMARY DATA SECTION

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N	un	Man

Prepared by

Men Marin

Reviewed by

SAMPLE DELIVERY GROUP H2724

SDG 7094
Contact Melissa C. Mannion

REPORT GUIDE

Client	Han:	ford
Contract	No.	630
Case no	SDG	H2724

ABOUT THE DATA SUMMARY SECTION

The Data Summary Section of a Data Package has all data, in several useful orders, necessary for first level, routine review of the data package for a Sample Delivery Group (SDG). This section follows the Data Package Narrative, which has an overview of the data package and a discussion of special problems. It is followed by the Raw Data Section, which has full details.

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

The Sample and QC Summary Reports show all samples, including QC samples, reported in one SDG. These reports cross-reference client and lab sample identifiers.

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches (lab groupings reflecting how work was organized) relevant to the reported SDG with information necessary to check the completeness and consistency of the SDG.

WORK SUMMARY

The Work Summary Report shows all samples and work done on them relevant to the reported SDG.

METHOD BLANKS

The Method Blank Reports, one for each Method Blank relevant to the SDG, show all results and primary supporting information for the blanks.

LAB CONTROL SAMPLES

The Lab Control Sample Reports, one for each Lab Control Sample relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

REPORT GUIDES

Page 1

SUMMARY DATA SECTION

Page 1

SAMPLE DELIVERY GROUP H2724

SDG <u>7094</u>

Contact Melissa C. Mannion

GUIDE, cont.

Client	Hanfor	rd	
Contract	No. 63	30	
Case no	SDG H2	724	

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

The Duplicate Reports, one for each Duplicate and Original sample pair relevant to the SDG, show all results, differences and primary supporting information for these QC samples.

MATRIX SPIKES

The Matrix Spike Reports, one for each Spiked and Original sample pair relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DATA SHEETS

The Data Sheet Reports, one for each client sample in the SDG, show all results and primary supporting information for these samples.

METHOD SUMMARIES

The Method Summary Reports, one for each test used in the SDG, show all results, QC and method performance data for one analyte on one or two pages. (A test is a short code for the method used to do certain work to the client's specification.)

REPORT GUIDES

The Report Guides, one for each of the above groups of reports, have documentation on how to read the associated reports.

REPORT GUIDES
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SUMMARY DATA SECTION
Page 2

SAMPLE DELIVERY GROUP H2724

SDG 7094 Contact Melissa C. Mannion

LAB SAMPLE SUMMARY

Client <u>Hanford</u> Contract No. 630 Case no SDG H2724

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
R409124-01	B1B3V0	Hanford Site	WATER	B03-018	B03-018-2	09/15/04 11:07
R409124-02	B1B3V2	Hanford Site	WATER	B03-018	B03-018-3	09/15/04 11:02
R409124-03	B1B3V4	Hanford Site	WATER	B03-018	B03-018-4	09/15/04 09:14
R409124-04	B1B3V6	Hanford Site	WATER	B03-018	B03-018-5	09/15/04 08:00
R409124-05	B1B3T6	Hanford Site	WATER	B03-018	B03-018-6	09/15/04 10:44
R409124-06	B1B3T8	Hanford Site	WATER	B03-018	B03-018-1	09/16/04 08:33
R409124-07	Lab Control Sample		WATER	B03-018		
R409124-08	Method Blank		WATER	B03-018		
R409124-09	Duplicate (R409124-01)	Hanford Site	WATER	в03-018		09/15/04 11:0
R409124-10	Spike (R409124-02)	Hanford Site	WATER	B03-018		09/15/04 11:0

LAB SUMMARY Page 1 SUMMARY DATA SECTION Page 3

SAMPLE DELIVERY GROUP H2724

SDG 7094 Contact <u>Melissa C. Mannion</u>

QC SUMMARY

Client <u>Hanford</u>
Contract <u>No. 630</u>
Case no <u>SDG H2724</u>

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX SOL		SIS DAYS SIN	ICE LAB	DEPARTMENT SAMPLE ID
7094	в03-018-1	B1B3T8	WATER	10.9 L	09/17/04	1 R409124-06	7094-006
	B03-018-2	B1B3V0	WATER	10.5 L	09/16/04	1 R409124-01	7094-001
	B03-018-3	B1B3V2	WATER	10.5 L	09/16/04	1 R409124-02	7094-002
	B03-018-4	B1B3V4	WATER	10.9 L	09/16/04	1 R409124-03	7094-003
	B03-018-5	B1B3V6	WATER	10.9 L	09/16/04	1 R409124-04	7094-004
	B03-018-6	B1B3T6	WATER	10.9 L	09/16/04	1 R409124-05	7094-005
		Method Blank	WATER			R409124-08	7094-008
		Lab Control Sample	WATER			R409124-07	7094-007
		Duplicate (R409124-01)	WATER	10.5 L	09/16/04	1 R409124-09	7094-009
		Spike (R409124-02)	WATER	10.5 L	09/16/04	1 R409124-10	7094-010

QC SUMMARY
Page 1
SUMMARY DATA SECTION
Page 4

EBERLINE SERVICES/RICHMOND SAMPLE DELIVERY GROUP H2724

SDG 7094
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Hanford
No. 630
SDG_H2724

			PREPARATION			– PL#	- PLANCHETS ANALYZED					
TEST MATRIX		METHOD	BATCH	BATCH 2σ %		CLIENT MORE		RE BLANK LO		DUP/ORIG MS/ORIG	FIERS	
Beta	Counting											
TC	WATER	Technetium 99 in Water	7095 - 194	10.0	6			1	1	1/1		
Gas F	roportion	nal Counting										
RAT	WATER	Total Alpha Radium in Water	7095 - 194	5.0	6			1	1	1/1		
Gas F	roportion	al Counting	•									
93A	WATER	Gross Alpha in Water	7095 - 194	20.0	6			1	1	1/1		
93B	WATER	Gross Beta in Water	7095 - 194	15.0	6			1	1	1/1		
Gamma	Spectros	сору										
I	WATER	Iodine 129 in Water	7095-194	5.0	6			1	1	1/1		
Kinet	ic Phosph	orimetry (KPA)										
U_T	WATER	Uranium, Total in Water	7095 - 194	9.0	6 ,			1	1	1/1		
Liqui	d Scintil	lation Counting										
С	WATER	Carbon 14 in Water	7095 - 194	10.0	6			1	1	1/1 1/1	X	

Duplicates and Matrix Spikes are those with original (Client) sample in this Sample Delivery Group.

Blank and LCS planchets are those in the same preparation batch as some Client, Duplicate or Spike sample.

PREP BATCH SUMMARY
Page 1
SUMMARY DATA SECTION
Page 5

SAMPLE DELIVERY GROUP H2724

SDG 7094 Contact Melissa C. Mannion

LAB WORK SUMMARY

Client <u>Hanford</u> Contract No. 630 Case no SDG H2724

LAB SAMPLE COLLECTED	CLIENT SAMPLE LOCATION	ID	MATRIX			SUF-				
RECEIVED	CUSTODY	SAF No		PLANCHET	TEST	FIX	ANALYZED	REVIEWED	вү	METHOD
R409124-01	B1B3V0			7094-001	93A/93		10/14/04	11/08/04	MWT	Gross Alpha in Water
09/15/04	Hanford Site		WATER	7094-001	93B/93		10/14/04	11/08/04	MWT	Gross Beta in Water
09/16/04	B03-018-2	B03-018		7094-001	С		11/02/04	11/08/04	MWT	Carbon 14 in Water
				7094-001	I		10/25/04	11/08/04	MWT	Iodine 129 in Water
				7094-001	RAT		10/26/04	11/08/04	MWT	Total Alpha Radium in Water
				7094-001	TC		10/25/04	11/08/04	MWT	Technetium 99 in Water
				7094-001	U_T		10/12/04	11/08/04	MWT	Uranium, Total in Water
R409124-02	B1B3V2			7094-002	93A/93		10/14/04	11/08/04	MWT	Gross Alpha in Water
09/15/04	Hanford Site		WATER	7094-002	93B/93		10/14/04	11/08/04	MWT	Gross Beta in Water
09/16/04	B03-018-3	B03-018		7094-002	С		11/02/04	11/08/04	MWT	Carbon 14 in Water
				7094-002	I		10/25/04	11/08/04	MWT	Iodine 129 in Water
				7094-002	RAT		10/26/04	11/08/04	MWT	Total Alpha Radium in Water
				7094-002	TC		10/27/04	11/08/04	MWT	Technetium 99 in Water
				7094-002	U_T		10/12/04	11/08/04	MWT	Uranium, Total in Water
R409124-03	B1B3V4			7094-003	93A/93		10/14/04	11/08/04	MWT	Gross Alpha in Water
09/15/04	Hanford Site		WATER	7094-003	93B/93		10/14/04	11/08/04	MWT	Gross Beta in Water
09/16/04	B03-018-4	B03-018		7094-003	С		11/02/04	11/08/04	MWT	Carbon 14 in Water
				7094-003	I		10/26/04	11/08/04	MWT	Iodine 129 in Water
				7094-003	RAT		10/29/04	11/08/04	MWT	Total Alpha Radium in Water
				7094-003	TC		10/26/04	11/08/04	MWT	Technetium 99 in Water
				7094-003	U_T		10/12/04	11/08/04	MWT	Uranium, Total in Water
R409124-04	B1B3V6			7094-004	93A/93		10/14/04	11/08/04	MWT	Gross Alpha in Water
09/15/04	Hanford Site		WATER	7094-004	93B/93		10/14/04	11/08/04	MWT	Gross Beta in Water
09/16/04	B03-018-5	B03-018		7094-004	С		11/02/04	11/08/04	MWT	Carbon 14 in Water
				7094-004	I		10/26/04	11/08/04	MWT	Iodine 129 in Water
				7094-004	RAT		10/29/04	11/08/04	MWT	Total Alpha Radium in Water
				7094-004	TC		10/26/04	11/08/04	MWT	Technetium 99 in Water
				7094-004	U_T		10/12/04	11/08/04	MWT	Uranium, Total in Water
R409124-05	B1B3T6			7094-005	93A/93		10/14/04	11/08/04	MWT	Gross Alpha in Water
09/15/04	Hanford Site		WATER	7094-005	9 3 B/93		10/14/04	11/08/04	MWT	Gross Beta in Water
09/16/04	B03-018-6	B03-018		7094-005	С		11/02/04	11/08/04	MWT	Carbon 14 in Water
				7094-005	I		10/27/04	11/08/04	MWT	Iodine 129 in Water
				7094-005	RAT		10/30/04	11/08/04	MWT	Total Alpha Radium in Water
				7094-005	TC		10/27/04	11/08/04	MWT	Technetium 99 in Water
				7094-005	U_T		10/12/04	11/08/04	MWT	Uranium, Total in Water

WORK SUMMARY Page 1 SUMMARY DATA SECTION Page 6

SAMPLE DELIVERY GROUP H2724

SDG 7094 Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client <u>Hanford</u> Contract No. 630 Case no SDG H2724

LAB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE I LOCATION CUSTODY	D SAF No	MATRIX	PLANCHET	TEST	SUF- FIX	ANALYZED	REVIEWED	вү	METHOD
-/	n4n7T0			7094-006	93A/93		10/14/04	11/08/04	MWT	Gross Alpha in Water
R409124-06	B1B3T8 Hanford Site		WATER	7094-006	93B/93		10/14/04	11/08/04	MWT	Gross Beta in Water
09/16/04	B03-018-1	в03-018	WATER	7094-006	C		11/02/04	11/08/04	MWT	Carbon 14 in Water
09/17/04	802-010-1	010-010		7094-006	ī		10/27/04	11/08/04	MWT	Iodine 129 in Water
				7094-006	RAT		10/26/04	11/08/04	MWT	Total Alpha Radium in Water
				7094-006	TC		10/27/04	11/08/04	MWT	Technetium 99 in Water
				7094-006	U_T		10/12/04	11/08/04	MWT	Uranium, Total in Water
R409124-07	Lab Control Sam	nple		7094-007	93A/93		10/14/04	11/08/04	MWT	Gross Alpha in Water
K407124 01		T	WATER	7094-007	93B/93		10/14/04	11/08/04	MWT	Gross Beta in Water
		в03-018		7094-007	С		11/02/04	11/08/04	MWT	Carbon 14 in Water
		•		7094-007	I		10/27/04	11/08/04	MWT	Iodine 129 in Water
				7094-007	RAT		10/26/04	11/08/04	MWT	Total Alpha Radium in Water
				7094-007	TC		10/25/04	11/08/04	MWT	Technetium 99 in Water
				7094-007	U_T		10/12/04	11/08/04	MWT	Uranium, Total in Water
R409124-08	Method Blank			7094-008	93A/93		10/14/04	11/08/04	MWT	Gross Alpha in Water
			WATER	7094-008	93B/93		10/14/04	11/08/04	MWT	Gross Beta in Water
		B03-018		7094-008	С		11/02/04	11/08/04	MWT	Carbon 14 in Water
				7094-008	I		10/27/04	11/08/04	MWT	Iodine 129 in Water
				7094-008	RAT		10/30/04	11/08/04	MWT	Total Alpha Radium in Water
				7094-008	TC		10/26/04	11/08/04	MWT	Technetium 99 in Water
				7094-008	U_T		10/12/04	11/08/04	MWT	Uranium, Total in Water
R409124-09	Duplicate (R409	7124-01)		7094-009	93A/93		10/14/04	11/08/04	MWT	Gross Alpha in Water
09/15/04	Hanford Site		WATER	7094-009	93B/93		10/14/04	11/08/04	MWT	Gross Beta in Water
09/16/04		в03-018		7094-009	С		11/02/04	11/08/04	MWT	Carbon 14 in Water
				7094-009	I		10/27/04	11/08/04	MWT	Iodine 129 in Water
				7094-009	RAT		10/27/04	11/08/04	MWT	Total Alpha Radium in Water
				7094-009	TC		10/27/04	11/08/04	MWT	Technetium 99 in Water
				7094-009	U_T		10/12/04	11/08/04	MWT	Uranium, Total in Water
R409124-10	Spike (R409124-	-02)		7094-010	С		11/03/04	11/08/04	MWT	Carbon 14 in Water
09/15/04	Hanford Site		WATER							
09/16/04		B03-018								

WORK SUMMARY Page 2 SUMMARY DATA SECTION Page 7

EBERLINE SERVICES/RICHMOND SAMPLE DELIVERY GROUP H2724

SDG	7094			
Contact	Melissa	C.	Mannion	

WORK SUMMARY, cont.

Client	Hanford
Contract	No. 630
Case no	SDG H2724

TEST	SAF No	COUNTS OF	F TESTS BY SAN REFERENCE	IPLE TYPE CLIENT MORE	RE BLANK	LCS	DUP SPIKE	TOTAL
93A/93	B03-018	Gross Alpha in Water	900.0_ALPHABETA_GPC	6	1	1	1	9
93B/93	B03-018	Gross Beta in Water	900.0_ALPHABETA_GPC	6	1	1	1	9
С	в03-018	Carbon 14 in Water	C14_CHEM_LSC	6	1	1	1 1	10
I	B03-018	Iodine 129 in Water	I 129_SEP_LEPS_GS	6	1	1	1	9
RAT	B03-018	Total Alpha Radium in Water	RATOT_GPC	6	1	1	1	9
TC	B03-018	Technetium 99 in Water	TC99_TR_SEP_LSC	6	1	1	1	9
U_T	B03-018	Uranium, Total in Water	UTOT_KPA	6	1	1	1	9
TOTALS	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			42	7	7	7 1	64

WORK SUMMARY
Page 3
SUMMARY DATA SECTION
Page 8

EBERLINE SERVICES/RICHMOND SAMPLE DELIVERY GROUP H2724

7094-008

METHOD BLANK

Method Blank

1	7094 Melissa C. Mannion	Client/Case no Contract		SDG_H2724
Lab sample id Dept sample id		Client sample id Material/Matrix SAF No	•	WATER

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	-0.127	0.43	0.94	3.0	U	93A
Gross Beta	12587-47-2	-0.174	1.2	2.0	4.0	U	93B
Carbon 14	14762-75-5	-20.5	20	34	200	U	C
Technetium 99	14133-76-7	1.74	2.0	4.8	15	U	TC
Total Uranium (ug/L)	7440-61-1	0.015	0.007	0.014	0.10		UT
Total Radium	ALPHA-RA	0.041	0.10	0.36	1.0	U	RAT
Iodine 129	15046-84-1	-0.260	1.5	3.3	5.0	U	I

ERDF Sept. 2004

QC-BLANK #49137

METHOD BLANKS
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SAMPLE DELIVERY GROUP H2724

7094-007

LAB CONTROL SAMPLE

Lab Control Sample

SDG <u>7</u> Contact <u>M</u>	7094 Melissa C. Mannion	Client/Case no Contract		SDG H2724
Lab sample id <u>R</u> Dept sample id <u>7</u>		Material/Matrix	Lab Control Sample B03-018	WATER

ANALYTE	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST	ADDED pCi/L	2σ ERR pCi/L	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Gross Alpha	70.7	5.3	0.83	3.0		93A	71.3	2.9	99	68-132	70-130
Gross Beta	74.4	3.6	1.8	4.0		93B	74.7	3.0	100	76-124	80-120
Carbon 14	9010	110	34	200		С	9570	380	94	85-115	80-120
Technetium 99	1240	35	8.3	15		тс	1200	48	103	83-117	80-120
Total Uranium (ug/L)	100	11	0.14	0.10		U_T	90.5	3.6	110	76-124	80-120
Total Radium	60.3	2.4	0.48	1.0		RAT	61.5	2.5	98	89-111	80-120
Iodine 129	517	12	17	5.0		ı	508	20	102	90-110	80-120

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QC-LCS #49136		

LAB CONTROL SAMPLES
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SUMMARY DATA SECTION
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SAMPLE DELIVERY GROUP H2724

7094-009

DUPLICATE

B1B3V0

SDG 7094		Client/Case no	Hanford SDG H2724
Contact Melissa C. Mannion		Contract	No. 630
DUPLICATE	ORIGINAL		
Lab sample id <u>R409124-09</u>	Lab sample id <u>R409124-01</u>	Client sample id	B1B3V0
Dept sample id <u>7094-009</u>	Dept sample id <u>7094-001</u>	Location/Matrix	Hanford Site WATER
	Received <u>09/16/04</u>	Collected/Volume	09/15/04 11:02 10.5 L
		Custody/SAF No	B03-018-2 B03-018

ANALYTE	DUPLICATE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST	ORIGINAL pCi/L	2σ ERR (COUNT)	MDA pCi/L	QUALI- FIERS	RPD %	3σ PROT
Gross Alpha	0.318	0.97	1.2	3.0	Ü	93A	-0.173	0.79	1.1	U	-	
Gross Beta	36.9	2.6	1.9	4.0		93B	34.3	2.8	1.8		7	36
Carbon 14	5.93	21	35	200	U	С	6.99	21	36	U	-	
Technetium 99	65.6	4.0	4.2	15		TC	63.5	4.7	5.3		3	26
Total Uranium (ug/L)	2.17	0.23	0.014	0.10	В	U_T	2.38	0.26	0.014	В	9	30
Total Radium	-0.033	0.10	0.46	1.0	U	RAT	-0.128	0.098	0.48	U	-	
Iodine 129	12.8	2.4	5.0	5.0		1	13.3	1.8	3.7		4	36

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C-DUP#1 49138	8	

DUPLICATES
Page 1
SUMMARY DATA SECTION
Page 11

SAMPLE DELIVERY GROUP H2724

7094-010

Lab sample id <u>R409124-10</u>

Dept sample id 7094-010

MATRIX SPIKE

B1B3V2

SDG 7094
Contact Melissa C. Mannion
MATRIX SPIKE

ORIGINAL

ORIGINAL

Lab sample id <u>R409124-02</u>

Dept sample id <u>7094-002</u>

Received <u>09/16/04</u>

Client/Case no <u>Hanford</u> <u>SDG H2724</u>

Contract No. 630

Client sample id <u>B1B3V2</u>

Location/Matrix Hanford Site

WATER

Collected/Volume 09/15/04 11:02 10.5 L Custody/SAF No B03-018-3 B03-018

ANALYTE	SPIKE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS		ADDED pCi/L	2σ ERR pCi/L	ORIGINAL pCi/L	2σ ERR (COUNT)	REC 3σ LMTS PROTOCOL % (TOTAL) LIMITS
Carbon 14	26600	270	63	200	х	С	28700	1100	0	21	93 85-115 60-140

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QC-MS#2 49139

MATRIX SPIKES
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EBERLINE SERVICES/RICHMOND SAMPLE DELIVERY GROUP H2724

7094-001

DATA SHEET

B1B3V0

	7094 Melissa C. Mannion	Client/Case no Contract	•	SDG_H2724
Lab sample id Dept sample id Received		Client sample id Location/Matrix Collected/Volume Custody/SAF No	Hanford Site 09/15/04 11:02	WATER 10.5 L B03-018

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	-0.173	0.79	1.1	3.0	U	93A
Gross Beta	12587-47-2	34.3	2.8	1.8	4.0		93B
Carbon 14	14762-75-5	6.99	21	36	200	U	C
Technetium 99	14133-76-7	63.5	4.7	5.3	15		TC
Total Uranium (ug/L)	7440-61-1	2.38	0.26	0.014	0.10	В	$\mathtt{U}_\mathtt{T}$
Total Radium	ALPHA-RA	-0.128	0.098	0.48	1.0	U	RAT
Iodine 129	15046-84-1	13.3	1.8	3.7	5.0		I

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EBERLINE SERVICES/RICHMOND SAMPLE DELIVERY GROUP H2724

7094-002

DATA SHEET

B1B3V2

	7094 Melissa C. Mannion	_ Client/Case no Contract	· · · · · · · · · · · · · · · · · · ·	SDG_H2724
Lab sample id Dept sample id Received		Client sample id Location/Matrix Collected/Volume Custody/SAF No	Hanford Site 09/15/04 11:02	WATER 10.5 L B03-018

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	-0.435	0.77	1.3	3.0	U	93A
Gross Beta	12587-47-2	34.1	2.5	2.0	4.0		93B
Carbon 14	14762-75-5	0	21	35	200	U	C
Technetium 99	14133-76-7	60.6	4.8	6.1	15		TC
Total Uranium (ug/L)	7440-61-1	2.15	0.23	0.014	0.10	В	$\mathbf{U}_{\mathbf{T}}$
Total Radium	ALPHA-RA	-0.050	0.16	0.46	1.0	U	RAT
Iodine 129	15046-84-1	13.6	1.6	3.2	5.0		I

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EBERLINE SERVICES / RICHMOND SAMPLE DELIVERY GROUP H2724

7094-003

DATA SHEET

B1B3V4

	7094 Melissa C. Mannion	Client/Case no Contract		SDG_H2724
Lab sample id Dept sample id Received		Client sample id Location/Matrix Collected/Volume Custody/SAF No	<u>Hanford Site</u> 09/15/04 09:14 10	<u>WATER</u> .9 L

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	0.487	1.1	1.4	3.0	U	93A
Gross Beta	12587-47-2	33.8	2.6	2.2	4.0		93B
Carbon 14	14762-75-5	1.22	20	34	200	U	C
Technetium 99	14133-76-7	56.5	5.3	7.4	15		TC
Total Uranium (ug/L)	7440-61-1	2.95	0.32	0.014	0.10	В	U_T
Total Radium	ALPHA-RA	-0.083	0.079	0.42	1.0	U	RAT
Iodine 129	15046-84-1	6.53	2.4	5.1	5.0		I

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EBERLINE SERVICES/RICHMOND SAMPLE DELIVERY GROUP H2724

7094-004

DATA SHEET

B1B3V6

	7094 Melissa C. Mannion	Client/Case no Contract		SDG_H2724
Lab sample id Dept sample id Received		Client sample id Location/Matrix Collected/Volume Custody/SAF No	<u>Hanford Site</u> 09/15/04 08:00	WATER 10.9 L B03-018

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	0.068	0.37	0.75	3.0	U	93A
Gross Beta	12587-47-2	-0.458	1.3	2.2	4.0	U	93B
Carbon 14	14762-75-5	-4.95	21	35	200	U	C
Technetium 99	14133-76-7	1.54	1.8	6.1	15	U	TC
Total Uranium (ug/L)	7440-61-1	0.007	0.007	0.014	0.10	U	$\mathtt{U}_\mathtt{T}$
Total Radium	ALPHA-RA	-0.087	0.087	0.47	1.0	U	RAT
Iodine 129	15046-84-1	-0.007	1.6	3.6	5.0	U	I

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EBERLINE SERVICES/RICHMOND SAMPLE DELIVERY GROUP H2724

7094-005

DATA SHEET

B1B3T6

	7094 Melissa C. Mannion	Client/Case no Contract		SDG_H2724
Lab sample id Dept sample id Received		Client sample id Location/Matrix Collected/Volume Custody/SAF No	Hanford Site 09/15/04 10:44	<u>WATER</u> 10.9 L

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	0.531	1.3	1.9	3.0	U	93A
Gross Beta	12587-47-2	38.3	2.7	2.1	4.0		93B
Carbon 14	14762-75-5	2.45	21	35	200	U	C
Technetium 99	14133-76-7	66.3	4.6	4.2	15		TC
Total Uranium (ug/L)	7440-61-1	2.59	0.28	0.014	0.10	В	U_T
Total Radium	ALPHA-RA	-0.051	0.14	0.36	1.0	U	RAT
Iodine 129	15046-84-1	2.52	1.4	3.1	5.0	U	I

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EBERLINE SERVICES/RICHMOND SAMPLE DELIVERY GROUP H2724

7094-006

DATA SHEET

B1B3T8

	7094 Melissa C. Mannion	Client/Case no Contract		SDG_H2724
Lab sample id Dept sample id Received		Client sample id Location/Matrix Collected/Volume Custody/SAF No	Hanford Site	

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	1.21	1.1	0.97	3.0		93A
Gross Beta	12587-47-2	39.1	2.6	1.7	4.0		93B
Carbon 14	14762-75-5	8.80	21	35	200	U	С
Technetium 99	14133-76-7	67.2	4.6	4.0	15		TC
Total Uranium (ug/L)	7440-61-1	2.35	0.25	0.014	0.10	В	U_T
Total Radium	ALPHA-RA	-0.022	0.11	0.49	1.0	U	RAT
Iodine 129	15046-84-1	4.99	1.9	4.1	5.0		I

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SAMPLE DELIVERY GROUP H2724

Test <u>TC</u> Matrix <u>WATER</u> SDG <u>7094</u>

Contact Melissa C. Mannion

LAB METHOD SUMMARY TECHNETIUM 99 IN WATER BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H2724

RESULTS

LAB	RAW SUF-			Technetium	
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	99	
Preparation	batch 7095	i-194			
R409124-01		7094-001	B1B3V0	63.5	
R409124-02		7094-002	B1B3V2	60.6	
R409124-03		7094-003	B1B3V4	56.5	
R409124-04		7094-004	B1B3V6	U	
R409124-05		7094-005	B1B3T6	66.3	
R409124-06		7094-006	B1B3T8	67.2	
R409124-07		7094-007	LCS (QC ID=49136)	ok	
R409124-08		7094-008	BLK (QC ID=49137)	U	
R409124-09		7094-009	Duplicate (R409124-01)	ok	

METHOD PERFORMANCE

LAB		SUF-	CLIENT	CAMD		TD.	MDA		PREP				COUNT					ANAL-	DETERTOR
SAMPLE ID	TEST	FIX	CLIENT	SAMP	L.E.	10	pCi/	L L	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation	batch	709	5-194	2σ	рг	ep error	10.0 %	Reference	Lab	Notebool	7095	pg.	194						
R409124-01			B1B3V0				5.3	0.100			90		56			40	10/22/04	10/25	GRB-224
R409124-02			B1B3V2				6.1	0.100			88		50			42	10/22/04	10/27	GRB-218
R409124-03			B1B3V4				7.4	0.100			70		51			41	10/22/04	10/26	GRB-220
R409124-04			B1B3V6				6.1	0.100			81		50			41	10/22/04	10/26	GRB-222
R409124-05			B1B3T6				4.2	0.100			87		100			42	10/22/04	10/27	GRB-221
R409124-06			B1B3T8				4.0	0.100			84		100			41	10/22/04	10/27	GRB-222
R409124-07			LCS (Q	C ID=	491	36)	8.3	0.100			80		32				10/22/04	10/25	GRB-224
R409124-08			BLK (Q	C ID=	491	37)	4.8	0.100			80		100				10/22/04	10/26	GRB-231
R409124-09			Duplic	ate (₹40	9124-01)	4.2	0.100			85		100			42	10/22/04	10/27	GRB-223
			(Q	E ID=	491	38)													
Nominal valu	ies ar	nd lin	mits fr	om me	tho	d	15	0.100			20-10	5	50	·		180			

METHOD SUMMARIES
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SAMPLE DELIVERY GROUP H2724

Test <u>TC</u> Matrix <u>WATER</u> SDG 7094 Contact Melissa C. Mannion

LAB METHOD SUMMARY, cont. TECHNETIUM 99 IN WATER

BETA COUNTING

Client <u>Hanford</u> Contract No. 630 Contract SDG H2724

PROCEDURES REFERENCE TC99_TR_SEP_LSC

CP-430

Technetium-99 Purification (Water) by Extraction

Chromatography, rev 1

CP-008 Heavy Element Electroplating, rev 9 AVERAGES ± 2 SD MDA 5.6 ± 3.0 FOR 9 SAMPLES YIELD <u>83</u> ± <u>12</u>

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SAMPLE DELIVERY GROUP H2724

Test RAT Matrix WATER
SDG 7094
Contact Melissa C. Mannion

LAB METHOD SUMMARY

TOTAL ALPHA RADIUM IN WATER

GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. 630
Contract SDG H2724

RESULTS

LAB	RAW SUF-	•			
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	Total Rac	ium
Preparation	batch 709	95-194			
R409124-01		7094-001	B1B3V0	U	
R409124-02		7094 - 002	B1B3V2	U	
R409124-03		7094-003	B1B3V4	U	
R409124-04		7094-004	B1B3V6	U	
R409124-05		7094-005	B1B3T6	U	
R409124-06		7094-006	B1B3T8	U	
R409124-07		7094-007	LCS (QC ID=49136)	ok	
R409124-08		7094-008	BLK (QC ID=49137)	U	
R409124-09		7094-009	Duplicate (R409124-01)	-	U

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF- FIX		SAMP	LE I	D	MD pCi		ALIQ L	PREP FAC		YIELD %	EFF %	COUNT min			PREPARED	ANAL - YZED	DETECTOR
Preparation	batcl	1 709	5-194	2σ	pre	p error	5.0 %	R	eference	Lab	Notebool	k 7095	pg.	194					
R409124-01			B1B3V0				0.	48	0.200			97		100		41	10/21/04	10/26	GAW-114
R409124-02			B1B3V2				0.	46	0.200			96		100		41	10/21/04	10/26	GAW-115
R409124-03			B1B3V4				0.	42	0.200			94		100		44	10/21/04	10/29	GAW-114
R409124-04			B1B3V6				0.	47	0.200			94		100		44	10/21/04	10/29	GAW-115
R409124-05			B1B3T6				0.	36	0.200			94		100		45	10/21/04	10/30	GAW-114
R409124-06			B1B3T8				0.	49	0.200			93		100		40	10/21/04	10/26	GAW-114
R409124-07			LCS (QC	ID=	913	5)	0.	48	0.200			92		100			10/21/04	10/26	GAW-115
R409124-08			BLK (QC	: ID=	913	7)	0.	36	0.200			93		100			10/21/04	10/30	GAW-114
R409124-09			Duplica (Q)	ate (: ID=4		-	0.	46	0.200			96		100		42	10/21/04	10/27	GAW-115
Nominal valu	Jes ar	nd lii	mits fro	om me	hod		1.	0	0.200			20-10	5	100		180			

METHOD SUMMARIES
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SAMPLE DELIVERY GROUP H2724

Test <u>RAT</u> Matrix <u>WATER</u> SDG 7094 Contact Melissa C. Mannion

LAB METHOD SUMMARY, cont.

TOTAL ALPHA RADIUM IN WATER GAS PROPORTIONAL COUNTING

Client <u>Hanford</u> Contract No. 630 Contract SDG H2724

PROCEDURES REFERENCE RATOT_GPC

DWP-880

Total Radium in Drinking Water, rev 0

MDA 0.44 ± 0.10 AVERAGES ± 2 SD FOR 9 SAMPLES YIELD 94 ± 3

METHOD SUMMARIES Page 4 SUMMARY DATA SECTION Page 22

SAMPLE DELIVERY GROUP H2724

Test <u>93A</u> Matrix <u>WATER</u>
SDG <u>7094</u>
Contact <u>Melissa C. Mannion</u>

LAB METHOD SUMMARY GROSS ALPHA IN WATER

GROSS ALPHA IN WATER
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. 630
Contract SDG H2724

RESULTS

LAB	RAW SUF	-		
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	Gross Alpha
Preparation	batch 70	95-194		
R409124-01	93	7094-001	B1B3V0	U
R409124-02	93	7094-002	B1B3V2	U
R409124-03	93	7094-003	B1B3V4	U
R409124-04	93	7094-004	B1B3V6	U
R409124-05	93	7094-005	B1B3T6	U
R409124-06	93	7094-006	B1B3T8	1.21
R409124-07	93	7094-007	LCS (QC ID=49136)	ok
R409124-08	93	7094-008	BLK (QC ID=49137)	U
R409124-09	93	7094-009	Duplicate (R409124-01)	- U

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST		CLIENT	SAMPLI	E ID		MDA pCi/	ALIQ L L	PREP FAC		RESID mg	EFF %	COUNT	FWHM keV	 	PREPARED	ANAL - YZED	DETECTOR
				-			•								 			
Preparation	batcl	1 709	5-194	2σ (orep	error	20.0 %	Reference	Lab	Notebool	k 7095	рg.	194					
R409124-01	93		B1B3V0				1.1	0.300			64		100		29	10/13/04	10/14	GRB-110
R409124-02	93		B1B3V2				1.3	0.300			68		100		29	10/13/04	10/14	GRB-111
R409124-03	93		B1B3V4				1.4	0.300			64		100		29	10/13/04	10/14	GRB-112
R409124-04	93		B1B3V6				0.75	0.300			0		100		29	10/13/04	10/14	GRB-114
R409124-05	93		B1B3T6				1.9	0.300			75		100		29	10/13/04	10/14	GRB-115
R409124-06	93		B1B3T8				0.9	7 0.300			57		100		28	10/13/04	10/14	GRB-101
R409124-07	93		LCS (Q	C ID=49	2136)	0.83	0.300			21		100			10/13/04	10/14	GRB-102
R409124-08	93		BLK (Q	C ID=49	2137)	0.94	0.300			21		100			10/13/04	10/14	GRB-105
R409124-09	93		Duplica	ate (R4	0912	24-01)	1.2	0.300			68		100		29	10/13/04	10/14	GRB-109
			(Q(C ID=49	2138)												
Nominal valu	ues ar	nd li	mits fro	om meth	nod		3.0	0.300			5-250)	100		 180			

METHOD SUMMARIES
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SAMPLE DELIVERY GROUP H2724

Test 93A Matrix WATER
SDG 7094
Contact Melissa C. Mannion

LAB METHOD SUMMARY, cont.

GROSS ALPHA IN WATER
GAS PROPORTIONAL COUNTING

Client	Hanford
Contract	No. 630
Contract	SDG_H2724

PROCEDURES REFERENCE 900.0_ALPHABETA_GPC

CP-120

Gross Alpha and Gross Beta in Water, rev 6

AVERAGES ± 2 SD MDA 1.2 ± 0.70 FOR 9 SAMPLES RESIDUE 49 ± 54

METHOD SUMMARIES
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SAMPLE DELIVERY GROUP H2724

Test 93B Matrix WATER
SDG 7094
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS BETA IN WATER
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. 630
Contract SDG H2724

RESULTS

LAB	RAW SUF-	•			
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	Gross Beta	. <u></u>
Preparation	batch 709	95-194			
R409124-01	93	7094-001	B1B3V0	34.3	
R409124-02	93	7094-002	B1B3V2	34.1	
R409124-03	93	7094-003	B1B3V4	33.8	
R409124-04	93	7094-004	B1B3V6	U	
R409124-05	93	7094-005	в1в3т6	38.3	
R409124-06	93	7094-006	в1в3т8	39.1	
8409124-07	93	7094-007	LCS (QC ID=49136)	ok	
R409124-08	93	7094-008	BLK (QC ID=49137)	U	
R409124-09	93	7094-009	Duplicate (R409124-01)	ok	

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF- FIX		SAMPLI	E ID		MDA pCi/	ALIQ L L	PREP FAC		RESID mg	EFF %	COUNT min			PREPARED	ANAL - Yzed	DETECTOR
Preparation	batcl	n 709	5-194	2σ ;	orep	error	15.0 %	Reference	Lab	Noteboo	k 7095	pg.	194					
R409124-01	93		B1B3V0				1.8	0.300			64		100		29	10/13/04	10/14	GRB-110
R409124-02	93		B1B3V2				2.0	0.300			68		100		29	10/13/04	10/14	GRB-111
R409124-03	93		B1B3V4				2.2	0.300			64		100		29	10/13/04	10/14	GRB-112
R409124-04	93		B1B3V6				2.2	0.300			0		100		29	10/13/04	10/14	GRB-114
R409124-05	93		B1B3T6				2.1	0.300			75		100		29	10/13/04	10/14	GRB-115
R409124-06	93		в1в3т8				1.7	0.300			57		100		28	10/13/04	10/14	GRB-101
R409124-07	93		LCS (Q	C ID=49	9136)	1.8	0.300			21		100			10/13/04	10/14	GRB-102
R409124-08	93		BLK (Q	C ID=49	2137)	2.0	0.300			21		100			10/13/04	10/14	GRB-105
R409124-09	93		Duplic (Q	ate (R4 C ID=49		-	1.9	0.300			68		100		29	10/13/04	10/14	GRB-109
Nominal val	ues a	nd li	mits fr	om metl	nod		4.0	0.300			5-25	0	100		180	- 10 1/4 0		

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SAMPLE DELIVERY GROUP H2724

Test 93B Matrix WATER
SDG 7094
Contact Melissa C. Mannion

LAB METHOD SUMMARY, cont.

GROSS BETA IN WATER
GAS PROPORTIONAL COUNTING

Client	<u>Hanford</u>
Contract	No. 630
Contract	SDG H2724

PROCEDURES REFERENCE 900.0_ALPHABETA_GPC

CP-120

Gross Alpha and Gross Beta in Water, rev 6

AVERAGES ± 2 SD

MDA 2.0 ± 0.36

FOR 9 SAMPLES

RESIDUE 49 ± 54

METHOD SUMMARIES
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SAMPLE DELIVERY GROUP H2724

Test	<u>I</u> Ma1	trix	WATER
SDG	7094		
Contact	Melissa	С.	Mannion

LAB METHOD SUMMARY IODINE 129 IN WATER GAMMA SPECTROSCOPY

Client <u>Hanford</u>
Contract <u>No. 630</u>
Contract <u>SDG H2724</u>

RESULTS

LAB RA	AW SUF-			
SAMPLE ID TE	EST FIX PLANCHET	CLIENT SAMPLE ID	Iodine 129	
Preparation ba	atch 7095-194			
R409124-01	7094-001	B1B3V0	13.3	
R409124-02	7094-002	B1B3V2	13.6	
R409124-03	7094-003	B1B3V4	6.53	
R409124-04	7094-004	B1B3V6	U	
R409124-05	7094-005	B1B3T6	U	
R409124-06	7094-006	в1в3т8	4.99	
R409124-07	7094-007	LCS (QC ID=49136)	ok	
R409124-08	7094-008	BLK (QC ID=49137)	U	
R409124-09	7094-009	Duplicate (R409124-01)	ok	

METHOD PERFORMANCE

LAB SAMPLE ID	RAW Test	SUF- FIX	CLIENT	SAMP	LE I	D	MDA pCi/		PREP FAC		YIELD %	EFF %	COUNT min		 	PREPARED	ANAL- YZED	DETECTOR
Preparation	batch	709	5-194	20	pre	p erro	r 5.0 %	Reference	Lab	Noteboo	k 7095	pg.	194					······································
R409124-01			B1B3V0		•	•	3.7	0.250			88		554		40	10/20/04	10/25	XSPEC-004
R409124-02			B1B3V2				3.2	0.250			82		912		40	10/20/04	10/25	XSPEC-004
R409124-03			B1B3V4				5.1	0.250			87		620		41	10/20/04	10/26	XSPEC-004
R409124-04			B1B3V6				3.6	0.250			89		451		41	10/20/04	10/26	XSPEC-004
R409124-05			в1в3т6				3.1	0.250			94		604		42	10/20/04	10/27	XSPEC-004
R409124-06			в1в3т8				4.1	0.250			96		617		41	10/20/04	10/27	XSPEC-002
R409124-07			LCS (Q	C ID=	4913	6)	_17	0.250			89		244			10/20/04	10/27	XSPEC-002
R409124-08			BLK (Q	C ID=	4913	7)	3.3	0.250			81		767			10/20/04	10/27	XSPEC-004
R409124-09			Duplic	ate (R409	124-01	5.0	0.250			95		487		42	10/20/04	10/27	XSPEC-002
			(Q	C ID=	4913	8)												
Nominal valu	ues an	d lii	mits fr	om me	thod)	5.0	0.250			20-10	5	300	100	180			

METHOD SUMMARIES
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SUMMARY DATA SECTION
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SAMPLE DELIVERY GROUP H2724

Test	<u> </u>	Mat	rix	WATER	_
SDG	7094				
Contact	Melis	ssa	c.	Mannion	

LAB METHOD SUMMARY, cont.

IODINE 129 IN WATER
GAMMA SPECTROSCOPY

Contract No. 630
Contract SDG H2724

PROCEDURES REFERENCE I 129_SEP_LEPS_GS

CP-024

Iodine-129, Sample Dissolution, rev 5

CP-530

Iodine-129 Purification, rev 1

AVERAGES ± 2 SD MDA 5.3 ± 8.9 FOR 9 SAMPLES YIELD 89 ± 11

METHOD SUMMARIES
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SAMPLE DELIVERY GROUP H2724

Test <u>U T</u> Matrix <u>WATER</u>
SDG 7094

Contact <u>Melissa C. Mannion</u>

LAB METHOD SUMMARY

URANIUM, TOTAL IN WATER
KINETIC PHOSPHORIMETRY (KPA)

Client Hanford
Contract No. 630
Contract SDG H2724

RESULTS

LAB SAMPLE ID	RAW SUF~ TEST FIX PLANCHET	CLIENT SAMPLE ID	Total Uranium	
SAMPLE ID	TEST FIX FLANCILI	CETERT SAFIFEE TO	- Craman	
Preparation	batch 7095-194			
R409124-01	7094-001	B1B3V0	2.38	
R409124-02	7094-002	B1B3V2	2.15	
R409124-03	7094-003	B1B3V4	2.95	
R409124-04	7094-004	B1B3V6	U	
R409124-05	7094-005	в1в3т6	2.59	
R409124-06	7094-006	B1B3T8	2.35	
R409124-07	7094-007	LCS (QC ID=49136)	ok	
R409124-08	7094-008	BLK (QC ID=49137)	0.015	
R409124-09	7094-009	Duplicate (R409124-01)	ok	
Nominal val	ues and limits from m	nethod RDLs (ug/L)	0.10	
ERDF Sept.	2004			

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST		CLIENT	SAMPLE	ID	MDA ug/L	AL IQ L	PREP FAC	DILU- TION	YIELD %	EFF %		DR I FT KeV		PREPARED	ANAL - YZED	DETECTOR
Preparation	batc	709	5-194	2 <i>σ</i> pι	ep erro	r 9.0 %	Reference	Lab I	oteboo	k 7095	pg.	194					<u></u>
R409124-01			B1B3V0			0.01	4 0.0200							27	10/12/04	10/12	KPA-001
R409124-02			B1B3V2			0.01	4 0.0200							27	10/12/04	10/12	KPA-001
R409124-03			B1B3V4			0.01	4 0.0200							27	10/12/04	10/12	KPA-001
R409124-04			B1B3V6			0.01	4 0.0200							27	10/12/04	10/12	KPA-001
R409124-05			в1в3т6			0.01	4 0.0200							27	10/12/04	10/12	KPA-001
R409124-06			в1в3т8			0.01	4 0.0200							26	10/12/04	10/12	KPA-001
R409124-07			LCS (Q	C ID=49'	136)	0.14	0.0200								10/12/04	10/12	KPA-001
R409124-08			BLK (Q	C ID=49	137)	0.01	4 0.0200								10/12/04	10/12	KPA-001
R409124-09			Duplic	ate (R40	9124-01	0.01	4 0.0200							27	10/12/04	10/12	KPA-001
			(Q	C ID=49	138)												
Nominal valu	ues ai	nd li	mits fr	om metho	od	0.10	0.0200			•				180			

METHOD SUMMARIES
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SAMPLE DELIVERY GROUP H2724

Test U_T Matrix WATER

SDG 7094

Contact Melissa C. Mannion

LAB METHOD SUMMARY, cont.

URANIUM, TOTAL IN WATER
KINETIC PHOSPHORIMETRY (KPA)

Client	Hanford
Contract	No. 630
Contract	SDG_H2724

PROCEDURES REFERENCE UTOT_KPA

CP-044 Sample Preparation for Total Uranium by Kinetic

Phosphorimetry, rev 6

CP-929 Calibration of the Kinetic Phosphorimeter, rev 9

AVERAGES ± 2 SD MDA 0.028 ± 0.084

FOR 9 SAMPLES YIELD ± ______

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SAMPLE DELIVERY GROUP H2724

Test C Matrix WATER SDG 7094 Contact Melissa C. Mannion

LAB METHOD SUMMARY CARBON 14 IN WATER LIQUID SCINTILLATION COUNTING

Client <u>Hanford</u> Contract No. 630 Contract SDG H2724

RESULTS

	W SUF- ST FIX PLANCHET	CLIENT SAMPLE ID	Carbon	14	
Preparation ba	tch 7095-194			P. W.L.	
R409124-01	7094-001	B1B3V0	U		
R409124-02	7094-002	B1B3V2	U		
R409124-03	7094-003	B1B3V4	U		
R409124-04	7094-004	B1B3V6	U		
R409124-05	7094-005	B1B3T6	U		
R409124-06	7094-006	B1B3T8	U		
R409124-07	7094-007	LCS (QC ID=49136)	ok		
R409124-08	7094-008	BLK (QC ID=49137)	U		
R409124-09	7094-009	Duplicate (R409124-01)	-	U	
R409124-10	7094-010	Spike (R409124-02)	ok	X	

Nominal values and limits from method

RDLs (pCi/L)

ERDF Sept. 2004

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF- FIX		SAMPLE	ID	MDA pCi/		PREP FAC		YIELD %	EFF %		FWHM keV	 	PREPARED	ANAL - YZED	DETECTOR
Preparation	batcl	709	5-194	2σ pr	ep error	10.0 %	Reference	Lab I	Notebool	k 7095	pg.	194					
R409124-01			B1B3V0			36	0.0300			100		75		48	11/01/04	11/02	LSC-005
R409124-02			B1B3V2			35	0.0300			100		75		48	11/01/04	11/02	LSC-005
R409124-03			B1B3V4			34	0.0300			100		75		48	11/01/04	11/02	LSC-005
R409124-04			B1B3V6			35	0.0300			100		75		48	11/01/04	11/02	LSC-005
R409124-05			B1B3T6			35	0.0300			100		75		48	11/01/04	11/02	LSC-005
R409124-06			B1B3T8			35	0.0300			100		75		47	11/01/04	11/02	LSC-005
R409124-07			LCS (Q	C ID=491	36)	34	0.0300			100		75			11/01/04	11/02	LSC-005
R409124-08			BLK (Q	C ID=491	37)	34	0.0300			100		75			11/01/04	11/02	LSC-005
R409124-09			•	ate (R40 C ID=491	9124-01) 38)	35	0.0300			100		75		48	11/01/04	11/02	LSC-005
R409124-10			•	(R409124 C ID=491	-	63	0.0200			100		52		49	11/01/04	11/03	LSC-005
Nominal valu	ies ar	nd lir	nits fro	om metho	d	200	0.0300					50		180			

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SAMPLE DELIVERY GROUP H2724

Test	<u>c</u>	Mat	ri	K	WATE	R	
SDG	7094						
Contact	Melis	ssa	c.	М	anni	on	

LAB METHOD SUMMARY, cont. CARBON 14 IN WATER

LIQUID SCINTILLATION COUNTING

Client	Hanford
Contract	No. 630
Contract	SDG H2724

PROCEDURES REFERENCE C14_CHEM_LSC
CP-241 Carbon-14 in Aqueous Samples, rev 6

 AVERAGES ± 2 SD
 MDA
 38
 ±
 18

 FOR 10 SAMPLES
 YIELD
 100
 ±
 0

METHOD SUMMARIES
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SAMPLE DELIVERY GROUP H2724

SDG 7094 Contact Melissa C. Mannion

REPORT GUIDE

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SAMPLE SUMMARY

The Sample and QC Summary Reports show all samples, including QC samples, reported in one Sample Delivery Group (SDG).

The Sample Summary Report fully identifies client samples and gives the corresponding lab sample identification. The QC Summary Report shows at the sample level how the lab organized the samples into batches and generated QC samples. The Preparation Batch and Method Summary Reports show this at the analysis level.

The following notes apply to these reports:

- * LAB SAMPLE ID is the lab's primary identification for a sample.
- * DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.
- * CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.
- * QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.
 - QC BATCH is not necessarily the same as SDG, which reflects samples received and reported together.
- * All Lab Control Samples, Method Blanks, Duplicates and Matrix Spikes are shown that QC any of the samples. Due to possible reanalyses, not all results for all these QC samples may be relevant to the SDG. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

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SAMPLE DELIVERY GROUP H2724

SDG 7094
Contact Melissa C. Mannion

REPORT GUIDE

Client	Hanford		
Contract	No. 630		
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PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches in one Sample Delivery Group (SDG) with information necessary to check the completeness and consistency of the SDG.

The following notes apply to this report:

- * The preparation batches are shown in the same order as the Method Summary Reports are printed.
- * Only analyses of planchets relevant to the SDG are included.
- * Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results.
- * The QUALIFIERS shown are all qualifiers other than U, J, B, L and H that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis.

These qualifiers should be reviewed as follows:

- X Some data has been manually entered or modified. Transcription errors are possible.
- P One or more results are 'preliminary'. The data is not ready for final reporting.
- 2 There were two or more results for one analyte on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets.

Other lab defined qualifiers may occur. In general, these should be addressed in the SDG narrative.

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Lab id EBRLNE

Protocol <u>Hanford</u>

Version <u>Ver 1.0</u>

Form DVD-RG

Version 3.06Report date 11/12/04

SAMPLE DELIVERY GROUP H2724

SDG 7094
Contact Melissa C. Mannion

REPORT GUIDE

Client	Hanford		
Contract	No.	630	
Case no	SDG	H2724	

WORK SUMMARY

The Work Summary Report shows all samples, including QC samples, and all relevant analyses in one Sample Delivery Group (SDG). This report is often useful as supporting documentation for an invoice.

The following notes apply to this report:

- * TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.
- * SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.
- * The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.
- * PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.
- * For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.
- * The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.

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SAMPLE DELIVERY GROUP H2724

SDG 7094 Contact Melissa C. Mannion

REPORT GUIDE

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DATA SHEET

The Data Sheet Report shows all results and primary supporting information for one client sample or Method Blank. This report corresponds to both the CLP Inorganics and Organics Data Sheet.

The following notes apply to this report:

- * TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for.
- * The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

The Method Summary Report for each TEST has method performance data, such as yield, for each Lab Sample ID and a list of procedures used in the method.

- * ERRORs can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.
- * A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.
- * When reporting a Method Blank, a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

U The RESULT is less than the MDA (Minimum Detectable Activity).

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SAMPLE DELIVERY GROUP H2724

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GUIDE, cont.

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Contract	No. 630	
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SHEET DATA

If the MDA is blank, the ERROR is used as the limit.

- J The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.
- B A Method Blank associated with this sample had a result without a U flag and, after correcting for possibly different aliquots, that result is greater than or equal to the MDA for this sample.

Normally, B is not assigned if U is. When method blank subtraction is shown on this report, B flags are assigned based on the unsubtracted values while U's are assigned based on the subtracted ones. Both flags can be assigned in this case.

For each sample result, all Method Blank results in the same preparation batch are compared. The Method Summary Report documents this and other QC relationships.

- L Some Lab Control Sample that QC's this sample had a low recovery. The lab can disable assignment of this qualifier.
- H Similar to 'L' except the recovery was high.
- P The RESULT is 'preliminary'.
- X Some data necessary to compute the RESULT, ERROR or MDA was manually entered or modified.
- 2 There were two or more results available for this analyte. reported result may not be the same as in the raw data.

Other qualifiers are lab defined. Definitions should be in the SDG narrative.

The following values are underlined to indicate possible problems:

* An MDA is underlined if it is bigger than its RDL.

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Lab id EBRLNE

Protocol Hanford

Version Ver 1.0

Form DVD-RG

Version 3.06 Report date 11/12/04

SAMPLE DELIVERY GROUP H2724

SDG 7094 Contact <u>Melissa C. Mannion</u>

GUIDE, cont.

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DATA SHEET

- * An ERROR is underlined if the 1.645 sigma counting error is bigger than both the MDA and the RESULT, implying that the MDA may not be a good estimate of the 'real' minimum detectable activity.
- * A negative RESULT is underlined if it is less than the negative of its 2 sigma counting ERROR.
- * When reporting a Method Blank, a RESULT is underlined if greater than its MDA. If the MDA is blank, the 2 sigma counting error is used in the comparison.

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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06

SAMPLE DELIVERY GROUP H2724

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REPORT GUIDE

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LAB CONTROL SAMPLE

The Lab Control Sample Report shows all results, recoveries and primary supporting information for one Lab Control Sample.

The following notes apply to this report:

- * All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.
- * An amount ADDED is the lab's value for the actual amount spiked into this sample with its ERROR an estimate of the error of this amount.

An amount added is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

- * REC (Recovery) is RESULT divided by ADDED expressed as a percent.
- * The first, computed limits for the recovery reflect:
 - 1. The error of RESULT, including that introduced by rounding the result prior to printing.

If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

- 2. The error of ADDED.
- 3. A lab specified, per analyte bias. The bias changes the center of the computed limits.
- * The second limits are protocol defined upper and lower QC limits for the recovery.
- * The recovery is underlined if it is outside either of these ranges.

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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0

Form DVD-RG

Version 3.06Report date 11/12/04

SAMPLE DELIVERY GROUP H2724

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REPORT GUIDE

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DUPLICATE

The Duplicate Report shows all results, differences and primary supporting information for one Duplicate and associated Original sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. This applies both to the Duplicate and Original sample data. Refer to the Data Sheet Report Guide for details.

If the Duplicate has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

* The RPD (Relative Percent Difference) is the absolute value of the difference of the RESULTs divided by their average expressed as a percent.

If both RESULTs are less than their MDAs, no RPD is computed and a '-' is printed.

For an analyte, if the lab did work for both samples but has data for only one, the MDA from the sample with data is used as the other's result in the RPD.

* The first, computed limit is the sum, as square root of sum of squares, of the errors of the results divided by the average result as a percent, hence the relative error of the difference rather than the error of the relative difference. The errors include those introduced by rounding the RESULTs prior to printing.

If this limit is labeled TOT, it includes the preparation error in the RESULTs. If labeled CNT, it does not.

This value reported for this limit is at most 999.

- * The second limit for the RPD is the larger of:
 - 1. A fixed percentage specified in the protocol.

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Lab id EBRLNE
Protocol Hanford

Version Ver 1.0

Form DVD-RG

Version 3.06

SAMPLE DELIVERY GROUP H2724

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GUIDE, cont.

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Case no	SDG	H2724	

DUPLICATE

- 2. A protocol factor (typically 2) times the average MDA as a percent of the average result. This limit applies when the results are close to the MDAs.
- * The RPD is underlined if it is greater than either limit.
- * If specified by the lab, the second limit column is replaced by the Difference Error Ratio (DER), which is the absolute value of the difference of the results divided by the quadratic sum of their one sigma errors, the same errors as used in the first limit.

Except for differences due to rounding, the DER is the same as the RPD divided by the first RPD limit with the limit scaled to 1 sigma.

* The DER is underlined if it is greater than the sigma factor, typically 2 or 3, shown in the header for the first RPD limit.

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SAMPLE DELIVERY GROUP H2724

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REPORT GUIDE

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MATRIX SPIKE

The Matrix Spike Report shows all results, recoveries and primary supporting information for one Matrix Spike and associated Original sample.

The following notes apply to this report:

- * All fields in common with the Data Sheet Report have similar usage. This applies both to the Spiked and Original sample data. Refer to the Data Sheet Report Guide for details.
 - If the Spike has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.
- * An amount ADDED is the lab's value for the actual amount spiked into the Spike sample with its ERROR an estimate of the error of this amount.
 - An amount is underlined if its ratio to the corresponding RDL is outside protocol specified limits.
- * REC (Recovery) is the Spike RESULT minus the Original RESULT divided by ADDED expressed as a percent.
- * The first, computed limits for the recovery reflect:
 - 1. The errors of the two RESULTs, including those introduced by rounding them prior to printing.
 - If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.
 - 2. The error of ADDED.
 - 3. A lab specified, per analyte bias. The bias changes the center of the computed limits.
- * The second limits are protocol defined upper and lower QC limits

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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06

SAMPLE DELIVERY GROUP H2724

SDG 7094
Contact Melissa C. Mannion

GUIDE, cont.

Client	Hanf	ord
Contract	No.	630
Case no	SDG	H2724

MATRIX SPIKE

for the recovery.

These limits are left blank if the Original RESULT is more than a protocol defined factor (typically 4) times ADDED. This is a way of accounting for that when the spike is small compared to the amount in the original sample, the recovery is unreliable.

* The recovery is underlined (out of spec) if it is outside either of these ranges.

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Lab id <u>EBRLNE</u> Protocol <u>Hanford</u>

Version Ver 1.0

Form <u>DVD-RG</u> Version <u>3.06</u>

SAMPLE DELIVERY GROUP H2724

SDG 7094
Contact Melissa C. Mannion

REPORT GUIDE

Client	Hanford
Contract	No. 630
Case no	SDG_H2724

METHOD SUMMARY

The Method Summary Report has two tables. One shows up to five results measured using one method. The other has performance data for the method. There is one report for each TEST, as used on the Data Sheet Report.

The following notes apply to this report:

* Each table is subdivided into sections, one for each preparation batch. A preparation batch is a group of aliquots prepared at roughly the same time in one work area of the lab using the same method.

There should be Lab Control Sample and Method Blank results in each preparation batch since this close correspondence makes the QC meaningful. Depending on lab policy, Duplicates need not occur in each batch since they QC sample dependencies such as matrix effects.

* The RAW TEST column shows the test code used in the raw data to identify a particular analysis if it is different than the test code in the header of the report. This occurs in special cases due to method specific details about how the lab labels work.

The Lab Sample or Planchet ID combined with the (Raw) Test Code and Suffix uniquely identify the raw data for each analysis.

* If a result is less than both its MDA and RDL, it is replaced by just 'U' on this report. If it is greater than or equal to the RDL but less than the MDA, the result is shown with a 'U' flag.

The J and X flags are as on the data sheet.

- * Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.
- * Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data'

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SAMPLE DELIVERY GROUP H2724

SDG 7094
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GUIDE, cont.

Client	Hani	ford	
Contract	No.	630	
Case no	SDG	H2724	

METHOD SUMMARY

means no amount ADDED was specified. 'LOW' and 'HIGH' correspond to when the recovery is underlined on the Lab Control Sample or Matrix Spike Report. See these reports for supporting data.

- * Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.
- * If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.

MDAs are underlined if greater than the printed RDL.

- * Aliquots are underlined if less than the nominal value specified for the method.
- * Prepareation factors are underlined if greater than the nominal value specified for the method.
- * Dilution factors are underlined if greater than the nominal value specified for the method.
- * Residues are underlined if outside the range specified for the method. Residues are not printed if yields are.
- * Yields, which may be gravimetric, radiometric or some type of recovery depending on the method, are underlined if outside the range specified for the method.
- * Efficiencies are underlined if outside the range specified for the method. Efficiencies are detector and geometry dependent so this test is only approximate.

REPORT GUIDES
Page 13
SUMMARY DATA SECTION
Page 45

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06

SAMPLE DELIVERY GROUP H2724

SDG 7094
Contact Melissa C. Mannion

GUIDE, cont.

Client	<u>Hanford</u>
Contract	No. 630
Case no	SDG_H2724

METHOD SUMMARY

- * Count times are underlined if less than the nominal value specified for the method.
- * Resolutions (as FWHM; Full Width at Half Max) are underlined if greater than the method specified limit.
- * Tracer drifts are underlined if their absolute values are greater than the method specified limit. Tracer drifts are not printed if percent moistures are.
- * Days Held are underlined if greater than the holding time specified in the protocol.
- * Analysis dates are underlined if before their planchet's preparation date or, if a limit is specified, too far after it.

For some methods, ratios as percentages and error estimates for them are computed for pairs of results. A ratio column header like '1 \div 3' means the ratio of the first result column and the third result column.

Ratios are not computed for Lab Control Sample, Method Blank or Matrix Spike results since their matrices are not necessarily similar to client samples'.

The error estimate for a ratio of results from one planchet reflects only counting errors since other errors should be correlated. For a ratio involving different planchets, if QC limits are computed based on total errors, the error for the ratio allows for the preparation errors for the planchets.

The ratio is underlined (out of spec) if the absolute value of its difference from the nominal value is greater than its error estimate. If no nominal value is specified, this test is not done.

For Gross Alpha or Gross Beta results, there may be a column showing the sum of other Alpha or Beta emitters. This sum includes all relevant

REPORT GUIDES
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SUMMARY DATA SECTION
Page 46

Lab id <u>EBRLNE</u> Protocol <u>Hanford</u>

Version <u>Ver 1.0</u>

Form <u>DVD-RG</u> Version 3.06

Report date 11/12/04

SAMPLE DELIVERY GROUP H2724

SDG 7094
Contact Melissa C. Mannion

GUIDE, cont.

Client	Hanford
Contract	No. 630
Case no	SDG_H2724

METHOD SUMMARY

results in the DVD database, whether reported or not. Results in the sum are weighted by a particles/decay value specified by the lab for each relevant analyte. Results less than their MDA are not included. No sums are computed for Lab Control, Method Blank or Matrix Spike samples since their various planchets may not be physically related.

If a ratio of total isotopic to Gross Alpha or Beta is shown, the error for the ratio reflects both the error in the Gross result and the sum, as square root of sum of squares, of the errors in the isotopic results.

For total elemental uranium or thorium results, there may be a column showing the total weight computed from associated isotopic results. Ignoring results less than their MDAs, this is a weighted sum of the isotopic results. The weights depend on the molecular weight and half-life of each isotope so as to convert activities (decays) to weight (atoms).

If a ratio of total computed to measured elemental uranium or thorium is shown, the error for the ratio reflects the errors in all the measurements.

REPORT GUIDES
Page 15
SUMMARY DATA SECTION
Page 47

PNNL						(CHAI	N OF (CUST	ODY/S	SAMP	PLE A	NAL	YSIS	REQUI	EST		C.O.C	. #	В03- В04- (018 02-2
									·											<u>1</u> of	2
	DURATEK F. M. HALI							Contact/Re Dot Stew		Ha	724	(709)	4)		Telephone 509-376		MS	SIN	FA	X	
SAF No.								Sampling O					1			Order/Cha	rge Code				
B04-002 Project Title					<u></u>						SITE				Ice Cheet	No es		Т			
ERDF SEPT 200)4							ציום	- 5,	Hus	H É	33			Ice Chest	"Smi	510	Ten	-		
Shinned To (Lah)	and the state of the state of				98.11	٠	era e e e e	Method of							Bill of Lac	ding/Air Bi	II No.	910	Gn	ca 24	169
\TMA/RECRA Protocol	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -		- 5 s at				and the state of the	Govt Tru	ck	Prio	rity: 45 [Davs			Offsite Pro	operty No.		10-0	10.	10 00	
CERCLA POSSIBLE SAMP	I F HAZADE	S/DE	MADES						•			L INSTRU	CTION	loH 2	d Time		Total A	ctivity E	vemntio	n: Yes	No
** **	DD HAZAND		, and a second									·							·	ii. 103 C.	
Sample No.	Lab ID	*	Date		Tim	1e	No/Type	Container					S	ample Anal	ysis					Prese	vative
B1B3T9 (F)		w	9-15-0	24	110	2	1x500-mL	G/P	ICP Metal	s - 6010TR	(Client List	t)								HNO	to pH <2
B1B3V0		w	1		1		3x40-mL	aGs*	VOA - 826	BOA (TCL)		-		·. · · · · · · · · · · · · · · · · · ·							H2SO4 to Cool 4C
B1B3V0		W					1x500-mL	G/P	ICP Metal	s - 6010TR	(Client List	1)								HNO	to pH <2
B1B3V0		w		1	1	-	1x500-mL	P	IC Anions	- 300.0										Cool 4	C
B1B3V0		W					1x200-mL	G/P	Alkalinity -	- 310.1										Cool 4	C
B1B3V0		W					1x300-mL	G/P	NO2/NO3	- 353.2										H2SC Cool 4	4 to pH <2 IC
B1B3V0		W					1x20-mL	Р	Activity So	can										None	
B1B3V0		W					2x1000-m	L G/P	Gross Alp	ha			:							HNO	to pH <2
B1B3V0		W					2x1000-m	L G/P	Gross Bet	ta										HNO	to pH <2
B1B3V0		W					1x125-ml	. G/P	Carbon-14	4										None	
B1B3V0		W					4x1000-m	L G/P	lodine-129	9	_									None	
B1B3V0		W	4		1		2x1000-m	L G/P	Radium -á	220 - (-†	otal)	min	9/17	t						HNO	to pH <2
Relinquished BRA	Print		Si	om			Date/	Time /400	Received By		Pri	int	Sign		Date	e/Time	<u> </u>		Mat	trix *	
F. M. H		Say	Si	أسرا	2/			1 5 2004	FEU	F.i	• • • • • • • • • • • • • • • • • • • •	•••	5.6.					= Soil	1414		Drum Solid
Relinquished By Relinquished By	D Ex	,	9	14	0 4	0	Date/	Time 25	Received By	Ans	Son	ed S	ara i	16/24	3:15	e/Time	SE SO SI. W	= Sedin = Solid = Sludg = Water = Oil	e	DI. = T = WI = I. =	Drum Liqui Tissue
- comquisited by			,	,			Da(¢/			\bigcirc			,		Date		Ä	= Air			Other
Relinquished By							Date/	Time	Received By	,					Date	e/Time					
FINAL SAMPL DISPOSITION		Method	d (e.g., Ren	ım to c	ustome	er, per	lab procedur	e, used in proc	ess)			, Di	isposed By	·			-		Date/Tin	ne	

PNNL					CHAIN OF	C.O.C.# (2	03-018				
							H2724 1	(7094)	_	Page 2	of <u>2</u>
SAF No. B04-002			-		Contact/Requestor Dot Stewart		(-17 · v ·	Telephone 509-376		SIN FAX	
Sample No.	_ Lab ID		Date	Time	No/Type Container		Sample Analysis		-3036	Preservativ	,e
B1B3V0		W	9-15-04	1102	1x250-mL G/P	Technetium-99				A TOSOL VELL	HCI to pH <2
B1B3V0		W			1x100-mL G/P	Total Uranium					HNO3 to pH <2
B1B3V0		W		1	1x500-mL G/P	TDS - 160.1	· · · · · · · · · · · · · · · · · · ·				Cool 4C
B1B3V0		w	J	1	1x500-mL aGs*	TOX - 9020					H2SO4 to pH <2 Cool 4C
									· · · · · · · · · · · · · · · · · · ·		
		 				<u> </u>	· · · · · · · · · · · · · · · · · · ·				

Relinquished By DURAYE F. M. HA	Print		Sign	ed	Date/Time /4/00 SEP 1 5 2004	Received By FEU EX	Print	Sign	Date/Time	Matrix	DS = Drum Solid
Relinquished By Relinquished By	30 Cx		9 16/	- P	Date/Time O : 25 Date/Time	Received By	Fredson	9/(1/0-	Date/Time S	F. = Sediment O = Solid L = Sludge / = Water = Oil	DI. = Drain Liqui T = Tissue WI = Wine I. = Liquid V = Vegetation X = Other
Relinquished By					Date/Time	Received By	, , , , , , , , , , , , , , , , , , ,		Date/Time		
FINAL SAMPLE DISPOSITION	Disposal N	Method	(e.g., Return to	customer, per	ab procedure, used in proce	ess)	D	risposed By		Date/Time	

PNNL							CHAIN OF	CUSTODY/9	SAMPLE ANALYSIS R	FOURST	C.O.C.# ?	03-018 04-00 2-3			
,									14 (7094)	EQUEST					
Collector	DURATEK						Contact/R	equester		Telephone No.	Page 1 MSIN FAX	of <u>2</u>			
SAF NO.	F. M. HALL						Dot Stev Sampling	Origin HANTERW		509-376-5056 Purchase Order/Charge Co					
B04-002 Project Title			····					HAPPEUU	>,TE	Ice Chest No2					
ERDF SEPT 2004							07	5- SAWS H	\mathcal{B} 7	Ice Chest No. Speed. 5/0 Temp.					
Shinned To (Lab) TMA/RECRA	erie School ar School Amerikansk programmer in de		e er ye				Method of Govt Tr	• • • • • • • • • • • • • • • • • • • •		Bill of Lading/Air Bill No. 7920 9058 2469					
Protocol CERCLA									rity: 45 Days	Offsite Property No.		, 2, 0			
POSSIBLE SAMPI	E HAZARI	S/RE	MAR	RKS			•			Time Tot	al Activity Exemption:	Yes V No			
Sample No.	Lab ID		1	Date	-	Гіте	No/Type Container		Sample Analys	is		Preservative			
B1B3V1 (F)	-	w	9-1	504	//	02	1x500-mL G/P	ICP Metals - 6010TR	(Client List)			HNO3 to pH <2			
B1B3V2		w	<u> </u>	T	Ť	\overline{I}	3x40-mL aGs*	VOA - 8260A (TCL)				HCI or H2SO4 to			
B1B3V2		w					1x500-mL G/P	ICP Metals - 6010TR	(Client List)			pH <2 Cool 4C HNO3 to pH <2			
B1B3V2		W			П		1x500-mL P	IC Anions - 300.0				Cool 4C			
B1B3V2		W			П		1x200-mL G/P	Alkalinity - 310.1				Cool 4C			
B1B3V2		W					1x300-mL G/P	NO2/NO3 - 353.2	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \			H2SO4 to pH <2 Cool 4C			
B1B3V2		W					1x20-mL P	Activity Scan				None			
B1B3V2		W				*.	2x1000-mL G/P	Gross Alpha				HNO3 to pH <2			
B1B3V2		W	\Box		П		2x1000-mL G/P	Gross Beta	·	-		HNO3 to pH <2			
B1B3V2		W					1x125-mL G/P	Carbon-14				None			
B1B3V2		W					4x1000-mL G/P	lodine-129		. 10.		None			
B1B3V2		W	1			,	2x1000-mL G/P	Radium 226 (To	otal) mcm/17/+			HNO3 to pH <2			
Relinquished By	EX Print	S	Sep Tep	Singun	le	relp	Date/Time / 400 SEP 1 5 2004	1 _	Print Sign	Date/Time	Matrix	* DS = Drum Solid			
Relinquished By Relinquished By	Fos	2	\sim		_9	(14	Date/Time	Received By	Fred Saras	Date/Time S	F. = Sediment O = Solid L = Shidge V = Water	DI. = Drum Liqui T = Tissue WI = Wine I. = Liquid V = Vegetation			
Relinquished By				·			Date/Time	Received By		Date/Time	= Air	X = Other			
FINAL SAMPLE DISPOSITION	Disposal M	lethod	(e.g., I	Return to	custo	mer, per	ab procedure, used in proc	ess)	Disposed By	-	Date/Time				

PNNL							CHAIN OF	CUSTODY	/SAMPL	E ĄNA	LYSIS RE	QUEST		C.O.C.#	B03 B04- (-018 1 02-3
								Hazz	24 (70	94)					<u>2</u> of	2
SAF No. B04-002							Contact/Requestor Dot Stewart				Telephone No. 509-376-505	56	MSIN	FAX		
Sample No.	Lab ID		,	Date	т	ime	No/Type Container		Sample An	alvsis				Preserva	ive	
B1B3V2		1		15-04	1	02	1x250-mL G/P	Technetium-99	. Danne zan	W. F. D. D.			· ·	1,150513.	HCI to	pH <2
B1B3V2		w		Ī		1	1x100-mL G/P	Total Uranium							HNO	to pH <2
B1B3V2		w					1x500-mL G/P	TDS - 160.1						_	Cool 4	ic
B1B3V2		w	Ĺ,	<u> </u>	J		1x500-mL aGs*	TOX - 9020							H2SO Cool 4	4 to pH <2 IC
					ļ										-	
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														· · · · · · · · · · · · · · · · · · ·	ļ	
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			-		-										- 	
·		<u>. </u>	J		<u> </u>			<u> </u>							<u> </u>	
Relinquished By	Prin	ی	-7	Sign			Date/Time /4CU		Print		Sign	Date/Time		Matr	ix *	
Relinquished By	EX Vol	7 E	- <u> </u>	4	1/1	. 1	SEP 1 5 2004 Date/Time	Received By	Fred Sa	Yas	9/16/04	Date/Time	SE = SO = SI. =	Soil Sediment Solid Sludge Water	DI. = T = WI =	Tissue Wine
Relinquished By					/′ •	1	Date/Time	Received By				Date/Time) n =	Oil Air	V =	Liquid Vegetation Other
Relinquished By							Date/Time	Received By				Date/Time	.1			
FINAL SAMPLE DISPOSITION	Disposal	Metho	d (e.g.,	, Return to	custo	mer, per	lab procedure, used in proc	cess)		Dispose	d By			Date/Tim	:	

PNNL						СНА	IN OF	I OF COSTOD PARTITUE ANALTSIS REQUEST) 18) 2=4
Collector R. I.	SICKLE						Contact/Re		H27.	24 1	7094)	Telephone N		MSIN	Page	AX	of <u>2</u>	
SAF No.	· · · · · · · · · · · · · · · · · · ·						Dot Stew Sampling (3:49	-/	509-376- Purchase O		ge Code				
B04-002 Project Title							7	Ts -SAWS-	`			Ice Chest N	0. Saa 1	226	Temp.			
ERDF SEPT 2004 Shinned To (Lah)	4					4 . **	Method of		-107			Bill of Ladi	ng/Air Bill	No.	. 01	200	24.6	,,
TMA/RECRA Protocol			11.4				Govt Tru		45.5			Offsite Prop	perty No.	795	0 90	<u> </u>	244	7
CERCLA							<u>.j</u>	Pri	ority: 45 Da	·	TIONS	Hold Time		Total Activ	its Cuoma	tion. W		No.
POSSIBLE SAMP	LE HAZARI)5/RE	WIARKS						SPECIAL			rioid Time		Total Activ	TY EXCHIP	cion. T	EJ	
Sample No.	Lab ID	*	Date		Time	No/Ty	e Container				Sample A	analysis				I	reserva	itive
B1B3V3 (F)		W	9-15-0	y c	914	1x500-n	nL G/P	ICP Metals - 6010T	R (Client List)			-				ŀ	INO3 to	pH <2
B1B3V4		w	1	1	1	3x40-m	aGs*	VOA - 8260A (TCL)							,		HCI or H H <2 C	2SO4 to
B1B3V4		w		_		1x500-n	nL G/P	ICP Metals - 6010T	R (Client List)								INO3 to	
B1B3V4		w				1x500-n		IC Anions - 300.0				,				7	Cool 4C	
B1B3V4		w				1x 200 r	nL G/P 15.04	Alkalinity - 310.1								(Cool 4C	
B1B3V4		W				1× 200 -r		NO2/NO3 - 353.2									12SO4 (Cool 4C	to pH <2
B1B3V4		w				1x20-m		Activity Scan								'	None	
B1B3V4		W				2x1000	mL G/P	Gross Alpha								'	1NO3 to	pH <2
B1B3V4		W				2x1000	mL G/P	Gross Beta			- · · · · · · · · · · · · · · · · · · ·					١	INO3 to	pH <2
B1B3V4		W				1x125-r	nL G/P	Carbon-14								'	None	
B1B3V4		W				4x1000	·mL G/P	lodine-129									None	
B1B3V4		W	+		A	2x1000	mL G/P	Radium 226 ('T	otal) 1	7/17/4							1NO3 to	pH <2
Relinguished By R.T. SIC	KLE				ø		e/Time/40.3	Received By Fal Ex	Print		Sign	Date/	Time		Soil	Matrix *		Drum Solid
Relinquished By		5	-	اه			e/Time	Received By		Fred	Sava=	Date/		SO = SL =	Sediment Solid Sludge	D T W	r = 1	Onim Linui Fissue Wine
Relinquished By	+ = =			- 1 //			e/Time	Received By	<u> </u>		1/1	Date/		O =	Water Oil Air	v X	= 1	Liquid Vegetation Other
Relinquished By	·					Dat	e/Time	Received By				Date/	Time	<u> </u>				
FINAL SAMPL DISPOSITION		Method	d (e.g., Retu	m to cu	stomer, p	er lab proced	ure, used in prod	cess)		Dis	posed By				Date	Time		

PNNL					CHAIN OF	CUSTODY	SAMPLE AN		QUEST	C.O.C.#	B03-018 B04-002-4
SAF No.					lom		H2724	(7094)			<u>2</u> of <u>2</u>
B04-002		· · · · ·			Contact/Requestor Dot Stewart	•		Telephone No. 509-376-5056	MSIN	FAX	
Sample No. B1B3V4	Lab ID	* W	Date	Time	No/Type Container	- <u>-</u>	Sample Analysis			Preserva	tive
			9-15-04	0914	1x250-mL G/P	Technetium-99					HCI to pH <2
B1B3V4		w	1	1 1	1x100-mL G/P	Total Uranium					HNO3 to pH <2
B1B3V4		w			1x500-mL G/P	TDS - 160.1					Cool 4C
B1B3V4		W	-	+	1x500-mL aGs*	TOX - 9020					H2SO4 to pH <2 Cool 4C
10											
										:a:	
					<u> </u>						
Relinquished By R.T. SICK	LE Z				Date/Time / 4/08 SEP 1 5 2004	Received By	Print	Sign	Date/Time	Matr	İ
Relinquished By		ye.	•	16/04	Date/Time	Received By	Fred So	2/16/24	Date/Time SE SO SI.	= Soil = Sediment = Solid = Shidge	DS = Drum Solid DL = Drum Licui T = Tissue WI = Wine
Relinquished By			/		Date/Time	Received By)			Date/Time O	= Water = Oil = Air	I. = Liquid V ≠ Vegetation X = Other
Relinquished By					Date/Time	Received By			Date/Time		
FINAL SAMPLE DISPOSITION	Disposal M	fethod	(e.g., Return to	customer, per	lab procedure, used in proce	ess)	Dispos	sed By		Date/Time	e

PNNL					CI	HAIN OF	COSTOD TOTAL TELEVISION REQUEST	304-002-5							
Collector R. T.	SICKLE					Contact/Re		of <u>2</u>							
SAF No.						Dot Stev Sampling (vart 73/29 (7079) 509-376-5056								
B04-002 Project Title															
ERDF SEPT 2004							DTS-5AWS-H&Y Ice Chest No. ERC-99.058 Temp.								
Shinned To (Lah)TMA/RECRA			art to		tweeth tea		ethod of Shipment Govt Truck Bill of Lading/Air Bill No. 7920 0437								
Protocol CERCLA							Priority: 45 Days Office Property No. PTR 14126								
POSSIBLE SAMPI	E HAZARI	OS/RE	MARKS				SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption:	Yes V No							
Sample No.	Lab ID		Date	Tin	ne N	o/Type Container	Sample Analysis	Preservative							
B1B3V5 (F)		W	9-15-0	4 082) C 1x	500-mL G/P	ICP Metals - 6010TR (Client List)	HNO3 to pH <2							
B1B3V6		W			3x	40-mL aGs*	VOA - 8260A (TCL)	HCl or H2SO4 to pH <2 Cool 4C							
B1B3V6		W			1x	500-mL G/P	ICP Metals - 6010TR (Client List)	HNO3 to pH <2							
B1B3V6		W			1x	500-mL P	IC Anions - 300.0	Cool 4C							
B1B3V6		W				200-mL G/P	Alkalinity - 310.1	Cool 4C							
B1B3V6		W			1x	900-mL G/P	NO2/NO3 - 353.2	H2SO4 to pH <2 Cool 4C							
B1B3V6		W				20-mL P	Activity Scan	None							
B1B3V6		W			2x	1000-mL G/P	Gross Alpha	HNO3 to pH <2							
B1B3V6		W			2x	1000-mL G/P	Gross Beta	HNO3 to pH <2							
B1B3V6		W			1x	125-mL G/P	Carbon-14	None							
B1B3V6		W			4x	1000-mL G/P	lodine-129	None							
B1B3V6		W	4		2x	1000-mL G/P	Radium +20 (Total) mcmg/17/4	HNO3 to pH <2							
Relinquished By R.T. SIC	KLE	M	S/gn		SE	Date/Time 14/05		DS = Drum Solid							
Relinquished By	-	۶,	9	(161		P 1 5 2004 Date/Time	Received By Fred Saras Date/Time SF = Sediment SO = Solid SI. = Shudge	DI. = Drum Liqui T = Tissue WI = Wine							
Relinquished By				+ " + "		Date/Time	Received by Date/Time O = Oil A = Air	I. = Liquid V = Vegetation X = Other							
Relinquished By						Date/Time	Received By Date/Time								
FINAL SAMPLE DISPOSITION	Disposal !	Method	l (e.g., Return	to custome	r, per lab pi	rocedure, used in proc	ess) Disposed By Date/Time								

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PNNL		•			•	CHAIN OF		PLE ANAL 24 (7094)	YSIS REQUEST		03-018 04-002-5 of 2
SAF No. B04-002		·				Contact/Requestor Dot Stewart			Telephone No. 509-376-5056	MSIN FAX	
Sample No.	Lab ID		Date	Ti	ime	No/Type Container	Samr	nle Analysis	1 307-370-3030	Preservativ	/e
B1B3V6		W	9-15-34	08	00 o	1x250-mL G/P	Technetium-99				HCI to pH <2
B1B3V6		w	1		1	1x400-mL G/P	Total Uranium				HNO3 to pH <2
B1B3V6		w				1x500-mL G/P	TDS - 160.1				Cool 4C
B1B3V6		w	1	-		1x500-mL aGs*	TOX - 9020				H2SO4 to pH <2 Cool 4C
					-						
				_							
Relinquished By R.T. SI						Date/Time / 40 SEP 1 \$ 2004	Received By Fel Ex	Print Sign	Date/Time	Matrix	
Relinquished By Relinquished By	Fed	The state of the s	<i>-</i>	9//	(6/s	Date/Time	Received By Received By	es Sarao	Date/Time 9 (C 6 / 0 4 3. 4 / Date/Time	S = Soil SF = Sediment SO = Solid SI = Sludge W = Water O = Oil	DS
Relinquished By						Date/Time	Received By		Date/Time	A = Air	X = Other
FINAL SAMPL DISPOSITION		Metho	d (e.g., Return to	custo	ner, per	lab procedure, used in proc	eess)	Disposed By		Date/Time	

PNNL CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST C.O.C. # 13-03- B04-0																						
Collector								ontact/Re			2724	1 (-)	094			one No.		MSI	L N	Page FAX		2
SAF No.	SICKLE	<u> </u>						Dot Stew impling O	art Origin	1/ /	Grad	5:70	19			-376-5056 ase Orde		e Code				
B04-002 Project Title									<u> </u>	Hant	over	377							OT as			
ERDF SEPT 2004	l										5-1184				ice Cii	est ivo.	ERC-	99-0.	SPI EI	лр. ———		
Shinned To (Lah) TMA/RECRA	recorder of the action		11.50	to describe to the second	i e din e e	4.6		ethod of S Govt True	Shipment ck						Bill of	Lading/A	Air Bill N	No. 79	20	095	8 248	70
Protocol CERCLA				121.4 01.5 0 1.5	u .					Pri	ority: 45 [Days			Offsite	Propert	v No.					
POSSIBLE SAMPLE HAZARDS/REMARKS SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes										ı: Yes 🗹	No L											
Sample No.	Lab ID	*		Date	Tin	me	No/Type Co	ontainer					Sa	mple Analys	sis		· · · · ·				Presei	vative
B1B3T5 (F)		W	9-	15-04	104	14	1x500-mL G	S/P	ICP Meta	als - 6010TF	R (Client List	t)									НИОЗ	to pH <2
B1B3T6		w	 	1	1		3x40-mL aG	Ss*	VOA - 82	260A (TCL))	-						······································				H2SO4 to
B1B3T6		w		1		$ \cdot $	1x500-mL G	S/P	ICP Meta	is - 6010Ti	R (Client List	t)										to pH <2
B1B3T6		w	\vdash	 			1x500-mL P)	IC Anion	s - 300.0	· · · · · · · · · · · · · · · · · · ·	,									Cool 4	С
B1B3T6		W				\prod	1x200-mL G	6/P '5`•• ⁄*	Alkalinity	- 310.1			·								Cool 4	C
B1B3T6		W	П				1x 300 mL G ان ک			3 - 353.2		**									H2SO- Cool 4	4 to pH <2 IC
B1B3T6		W	П				1x20-mL P		Activity S	can											None	
B1B3T6		W	П				2x1000-mL	G/P	Gross Al	pha												to pH <2
B1B3T6		W	П				2x1000-mL	G/P	Gross Be	eta											НИОЗ	to pH <2
B1B3T6		W	П				1x125-mL G	}/P	Carbon-	14											None	
B1B3T6		W					4x1000-mL	G/P	lodine-12												None	
B1B3T6		W	4	,		9	2x1000-mL	G/P	Radium	-226- (T	stal)	Malint									HNO3	to pH <2
Relinquished By R.T. SI	CKLE	1	2/	Sign	<i>-</i>		Date/Tin	• •	Received E		Pri		Sign			Date/Time	;		= Soil	Matr	DS =	Drum Solid
Relinquished By	_ / /			. (,		Date/Tim	ne	Received E	ly L	, F	~eD ~	Save	2 ° ′		Date/Time	1	SO =			T =	Drum Liani Tissue
Relinquished By	> 7∞			<u>9//b</u>	104	<u> </u>	/0:25 Date/Tim	ne	Received E	in a	<u>Dare</u>	~	9	1/6/27	£	3. 4.5 Date/Time					I. = V =	Wine Liquid Vegetation Other
Relinquished By							Date/Tin	ne	Received E	ły						Date/Time						
FINAL SAMPLE DISPOSITION	Disposal 1	Method	d (e.g.,	Return to	custom	er, per la	ab procedure, u	sed in proce	ess)		· · · · · · · · · · · · · · · · · · ·	Di	sposed By							Date/Time	e	

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST								C.O.C.#	ცია B04-(002-6			
							H2794 (70	94)				<u>2</u> of	2
SAF No. B04-002						Contact/Requestor Dot Stewart			Telephone No. 509-376-5056	MSIN	FAX		
Sample No.	Lab ID		Date	Ti	me	No/Type Container	Sample Analysi	S			Preserva	iyc	
B1B3T6		W	9-1504			1x250-mL G/P	Technetium-99					HCI to	pH <2
B1B3T6		w	1	,		1x400-mL G/P	Total Uranium					HNO	3 to pH <2
B1B3T6		w				1x500-mL G/P	TDS - 160.1					Cool	
B1B3T6		w		1		1x500-mL aGs*	TOX - 9020					H2SC Cool	04 to pH <2 4C
								<u> </u>			<u>, ,</u>		
										· · · · · ·		-	
													
												-	
		-		<u> </u>								+-	
		-	-						······································			 	-
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	<u></u>	<u> </u>		<u> </u>									
		<u> </u>								- <u>-</u>			
L				L 		<u> </u>	<u> </u>						
Relinquished By R.T. SI	Prin	1	Sign		,	Date/Time /4/00	Received By Print	Sig	Date/Time		Mat		D 0 111
Relinquished By Relinquished By	Fo	<u> </u>	4×	-	9/	Date/Time	Received By Fred San Received By	9/16	Date/Time / - 4 3: 45 Date/Time	SF = SO = SI. = W = O =	Soil Sediment Solid Sludge Water Oil Air	DI. T WI I. V	= Drum Solid = Drum Lioui = Tissue = Wine = Liouid = Vegetation = Other
Relinquished By						Date/Time	Received By		Date/Time				
FINAL SAMPLE DISPOSITION	Disposal	Metho	d (e.g., Return t	o custo	mer, per	lab procedure, used in proc	I cess)	Disposed B	у		Date/Tim	ne	

PNNL CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST C.O.C. # Bo3-018 B04-002=1																	
			ł											Pag	ge <u>]</u>	of	2
Collector R.	SICKLE						Contact/Re	quester Ha	2724	(7094 5;4)	Telephone No. 509-376-5056	MSI	N	FAX		
SAF No.							Sampling C	Drigin Hark	Gord	5:4	1	Purchase Order/	Charge Code				
B04-002 Project Title								T6-5A133-				Ice Chest No. 5	n L 558	Temp.			
ERDF SEPT 2004 Shinned To (Lah)	Line Market .	5.5.				no vece	Method of	Shipment	(10			Bill of Lading/Ai			すっく	381	85
TMA/RECRA Protocol	ny taha salahan	re La Bra	mark mark of		0		Govt Tru		ority: 45 Da			Offsite Property		12/	ں تو ہے	20.	
CERCLA POSSIBLE SAMPLE HAZARDS/REMARKS SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes											Yes 🛂	No L					
** **																	
Sample No.	Lab ID	*	Dat	e	Time	: No	/Type Container				Sample Analy	/sis				Prese	rvative
B1B3T7 (F)		W	9-110	-04	دو ۵	1x5 حرم	00-mL G/P	ICP Metals - 6010TF	R (Client List)							HNO	3 to pH <2
B1B3T8		w	1		1		0-mL aGs*	VOA - 8260A (TCL)								HCI o	r H2SO4 to 2 Cool 4C
B1B3T8		w			1x500-mL G/P ICP Metals - 6010TR (Client List) HNO3 to pH <2												
B1B3T8		w				1x5	00-mL P	IC Anions - 300.0			· · · · · · · · · · · · · · · · · · ·					Cool	4C
B1B3T8	<u> </u>	w				1x2	の-mL G/P	Alkalinity - 310.1								Cool	4C
B1B3T8		W					80-mL G/P © /기	NO2/NO3 - 353.2								H2SC Cool	04 to pH <2 4C
B1B3T8		w					0-mL P	Activity Scan								None	
B1B3T8		W				2x1	000-mL G/P	Gross Alpha								HNO	3 to pH <2
B1B3T8		w				2x1	000-mL G/P	Gross Beta				· · · · · · · · · · · · · · · · · · ·	-			HNO:	3 to pH <2
B1B3T8		w				1x1	25-mL G/P	Carbon-14								None	
B1B3T8		W				4x1	000-mL G/P	lodine-129								None	
B1B3T8		W			. 50	2x1	000-mL G/P	Radium 228	(hoto	Mcmilial	4			"		HNO	3 to pH <2
Relinquished By R.T. SIC	KLE	2				SEF	Date/Time / -/0\) Date/Time Date/Time	Folex		Sana	ign	Date/Time	SE	= Soil = Sediment	Matr	DS = D1. =	= Drum Solid = Drum Liaui
To	D/ £	, /		a	lal.	nΥ	9310	427			$\frac{1}{9}$	4 10:3	SI.	= Solid = Shidge = Water		Wi =	= Tissue = Wine = Lionid
Relinquished By					 	<u> </u>	Date/Time	Received By	~ ~		-++++//-	Date/Time	Ő	= Water = Oil = Air		V =	= Vegetation = Other
Relinquished By	<u>-</u>						Date/Time	Received By				Date/Time	<u> </u>				
FINAL SAMPL DISPOSITION		Metho	d (e.g., Re	turn to	customer	, per lab pr	ocedure, used in proc	cess)		Disposed	Ву			De	ate/Time	;	

PNNL					CH	AIN OF	CUSTODY/	SAMPLE AN - 2792 (70	ALYSIS	REQUEST	C.O.C.#	B03-018 -B04-002-1
	· · · · · · · · · · · · · · · · · · ·				 		}	12794 (70	94)		Page	<u>2</u> of <u>2</u>
SAF No. B04-002					Contac	ct/Requestor Stewart			Telephon 509-37	e No. 6-5056	MSIN FAX	
	Lab ID		Date	Tim		vne Container		Sample Analysis			Preserv	I.i.a II
Sample No. B1B3T8	Lavin	W	9-16-09		1 4 0 0 0	-mL G/P	Technetium-99	Samule Analysis			Fiesery	HCI to pH <2
B1B3T8		W	1			mL G/P	Total Uranium					HNO3 to pH <2
B1B3T8		w		7		-mL G/P	TDS - 160.1					Cool 4C
B1B3T8		W	>	1	1x500	-mL aGs*	TOX - 9020					H2SO4 to pH <2 Cool 4C
						. <u></u>						
										·		
									-			
Relinquished By R.T. SI	CKLE	Ź	Sign		SEP '	ate/Time / 460	Received By Fedex	Print	Sign	Date/Time	Mat S = Soil	DS = Drum Solid
Relinquished By Relinquished By	D 9	4		1/1	10 P	ate/Time	Received By Received By	Same	Sara=	Date/Time Date/Time	SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air	DI. = Drum Liani T = Tissue WI = Wine I. = Lianid V = Vezetation X = Other
Relinquished By					Di	ate/Time	Received By			Date/Time		
FINAL SAMPLE DISPOSITION	Disposal M	1e thod	(e.g., Return to	customer,	per lab proce	dure, used in proc	eess)	Dispos	ed By		Date/Tin	ne

									100	
PNNL				•	CHAIN OF	CUSTODY/S	SAMPLE ANALYS		c.o.c.# P	03-018 04-002-7
							H2724 (7094)		Page <u>1</u>	of <u>1</u>
Collector R.T.	SICKLE				Contact/Re	quester Do + S	teward	1 elephone 140. \$69 376 - 50	sé MSIN FAX	
SAF No.					Sampling C	Origin Hanfor	dsih	Purchase Order/Charge	e Code	
B04-002 Project Title					7	75-5A01-		Ice Chest No. 5 ML	530 Temp.	
ERDF SEPT 2004 Shinned To (Lah)					Method of	Shipment Care	t Truck	Bill of Lading/Air Bill N	10.7927 3263	8180
\TMA/RECRA Protocol				1			rity: 45 Days	Offsite Property No.	(74))203	1105
CERCLA POSSIBLE SAMPI	LE HAZARD	S/RE	MARKS				SPECIAL INSTRUCTIONS	Hold Time	Total Activity Exemption:	Yes ✓ No L
** **		,				T				
Sample No.	Lab ID	*	Date	Time	No/Type Container		Sample	Analysis		Preservative HCI or H2SO4 to
B1B439		W	9-16-04	073=	3x40-mL aGs*	VOA - 8260A (TCL)				pH <2 Cool 4C
B1B439		w	1	4	1x20-mL P	Activity Scan				None
		-			l					
		-								
	<u> </u>	<u> </u>				-				
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		<u> </u>	<u> </u>							
<u> </u>		<u> </u>	<u> </u>		<u>† </u>					<u> </u>
Relinquished By	SICKLE		Sign		Date/Time / 400 SEP 1 6 2004	Received By		Date/Time	Matri	DS = Dnm Solid
Relinquished By Relinquished By	D E,		9/	17/04	Date/Time	Received By Received By	Fred Sarao - 9/17/04	Date/Time / > . 3 f Av Date/Time	SE = Sediment SO = Solid SI = Shudge W = Water O = Oil A = Air	DI
Relinquished By		., .			Date/Time	Received By		Date/Time		
FINAL SAMPL DISPOSITION		Metho	d (e.g., Return to	o customer, pe	lab procedure, used in pro	cess)	Disposed By		Date/Time	<u> </u>

PNNL				(CHAIN OF	CUSTODY/S	SAMPLE A	NALYSIS R	EQUEST	C.o.c.# B	03~0\% 04=002-8
						H2	724 /709	4)		Page 1	of <u>l</u>
Collector	F. M. HALL	-			Contact/	Requester Dor ST		7	Telephone No. 569 376	MSIN FAX	
SAF No. B04-002					Sampling		MO SITE		Purchase Order/Charg	e Code	
Project Title _ERDF SEPT 2004					î	175- SAUS	H83		Ice Chest No. Sunt	_ 5/0 Temp.	
Shinned To (Lah)						of Shipment	/		Bill of Lading/Air Bill	No. 7920905	- 6 3446
TMA/RECRA Protocol						GOO	Veluche		Offsite Property No.	790903	82961
CERCLA POSSIBLE SAMPLI	E HAZARD	S/REM	IARKS			Prio	rity: 45 Days SPECIAL INSTRU		Time	Total Activity Exemption:	Yes V No
** **	·										
Sample No.	Lab ID	•	Date	Time	No/Type Containe			Sample Analys	is		Preservative
B1B440		W	1-15-04	0850	3x40-mL aGs*	VOA - 8260A (TCL)					HCl or H2SO4 to pH <2 Cool 4C
B1B440		W	1.	1	1x20-mL P	Activity Scan					None
			7	*							
	· · · · · · · · · · · · · · · · · · ·										·
		\dashv									
		\dashv									
		\dashv			Acres .						
			. <u></u>		·						
Relinquish e Unit F. M. HALL	Print 9	1	Sign	el	Date/Time/ 400 SEP 1 5 2004	Received By	Print	Sign	Date/Time	Matrix S = Soil	DS = Drum Solid
Relinquished By		7	- (Date/Time	Received By	Fred Sav	ra s	Date/Time	SE = Sediment SO = Solid	DL = Drim Lioni T = Tissue
Relinquished By	20 5,	9	9/1	5/0 Ø	Date/Time	Received By	~	9/16/04	3. 15 Date/Time	SI. = Sludge W = Water O = Oil A = Air	WI = Wine I. = Liquid V = Vegetation X = Other
Relinquished By					Date/Time	Received By			Date/Time	I	
FINAL SAMPLE DISPOSITION	Disposal M	lethod (e	e.g., Return to	customer, per	ab procedure, used in p	ocess)	D	isposed By		Date/Time	

PNNL				:	Page 1 of									0) & 0) & 0) & 0) & 0) & 0) & 0) & 0) &
Collector	R.T. SIC	KLI	E			Contact/R	equester Ha	724 (7094)	Telep	hone No.	MSIN	FAX		
SAF No.			-			Sampling			Purch	ase Order/Charg	e Code 79 20	·	 	
B04-002 Project Title	·								In C	N	79 20	-		
ERDF SE	PT 2004						3.5AM. 4	184	ice Ci	HEST INO. ERC-	99.05 Temp	•		
Shinned To TMA/REG		8 v	2.4	2 2 2 2 2 2		Method of	Shipment		Bill of	Lading/Air Bill	No. 7920 C	958	748	20
Protocol CERCLA		***					Prio	rity: 45 Days	Offsit	e Property No.	, , , ,	<u>.,, , , , , , , , , , , , , , , , , , ,</u>	2 70	
POSSIBLE:	SAMPLE HA	ZARD	S/RE	MARKS				SPECIAL INSTRUCTIONS	Hold Time		Total Activity Exe	mntion:	Vec V	No.
** **	····				-		T							
Sample	No. Lab		*	Date	Time	No/Type Container		Sa	mple Analysis				Preserv	ative
B1B441			W	9.15-04	0800	3x40-mL aGs*	VOA - 8260A (TCL)	- · · · ·					HCl or I pH <2 C	H2SO4 to
B1B441			W	1	L	1x20-mL P	Activity Scan						None	J001 4C
·														
										· -				
														
:		_												
						· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·						
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					سد									
Relinquished	Ву	Print		25	<i>f</i>	Date/Time / 400	Received By	Print Sign		Date/Time		14.4.1.4		
R.T.	SICKLE	2	2			SEP 1 5 2004	Fel Ex	Trial Sign		Date Time		Matrix *	•	
Relinquished			4	<u> </u>		Date/Time	Received By	Fred Saras		Date/Time	S = Soil SE = Sediment			Drum Solid Drum Liqui
1	=3 9	_		9/10	6. 10	10: 25	101	1 (es sava	1 1 .	3. 4 J	SO = Solid SL = Sludge	j	· = ·	Tissue Wine
Relinquished	Ву	,×			/* * /	Date/Time	Received by	<u>~~</u>		Date/Time	W = Water O = Oil A = Air	i \ \	. = 1 / = 1	Liquid Vegetation Other
Relinquished	Ву					Date/Time	Received By			Date/Time				
FINAL SA DISPOSI	MPLE Dis	posal M	lethod	(e.g., Return to	customer, per l	ab procedure, used in proc	éss)	Disposed By			Da	te/Time		

PNNL				CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST C.O.C. # 303 B04-0 Page 1 of								
Collector R.T.S	ICKI E				Contact	Requester /1 2	724 (7094)		Telephone No.	MSIN	FAX	
SAI NO.	IOILL				Samplin	ng Origin	rd 5 th		Purchase Order/Char	ge Code		
B04-002 Project Title				 .					Ice Chest No.		mp.	
ERDF SEPT 2004 Shinned To (Lah)	1					of Shipment	HSY			226	np.	
:TMA/RECRA	e e e e e e e e e e e e e e e e e e e				Wiethou	of Simplifient			Bill of Lading/Air Bill	7920	9058	249/
Protocol CERCLA			·		Priority: 45 Days Offsite Property No.							
POSSIBLE SAMPI	LE HAZARD	OS/RE	EMARKS				SPECIAL INSTRUCTIO	NS Hold	Time	Total Activity E	xemption:	Yes M No
Sample No.	Lab ID		Date	Time	No/Type Contain	er		Sample Analys	is			Preservative
B1B442		W	4-15-64	orec	3x40-mL aGs*	VOA - 8260A (TCL)						HCI or H2SO4 to
B1B442		w	1	1	1x20-mL P	Activity Scan						pH <2 Cool 4C None
		\vdash										
		_										
							<i>y</i>					
												
		<u> </u>										
		_			·							
				Ì								-
Relinguished BSIC	iżi r- Print		Sirgn		Date/Time #///	Received By	Print Si	gn	Date/Time		Maria	
R.1.5 IC	KLE	M			SEP 1 5 2004	Fed EX		ь.	Date Taile		Matrix	
Relinquished By		, _			Date/Time	Received By	Fred San	-00	Date/Time	S = Soil SE = Sedin	nent i	DS = Drum Solid DL = Drum Liqui
Fe	35 ₀		9/	16/04	10:25	1 Sunt	aun 9	116/20	21:15	SO = Solid SL = Sludg W = Water	e ¹	T = Tissue WI = Wine I. = Liquid
Relinquished By	,		/	,	Date/Time	Received By		,,	Date/Time	O = Oil A = Air	•	V = Vegetation X = Other
Relinquished By					Date/Time	Received By			Date/Fire			
						The state of the s			Date/Time			
FINAL SAMPLE DISPOSITION	Disposal N	Method	(e.g., Return to	customer, per	lab procedure, used in p	process)	Disposed	Ву			Date/Time	- , - · ,

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RICHMOND, CA LABORATORY

ICE CHEST RECEIPT LOG

Use one form per shipment. Refer to Thermometer Correction Log for correction factor.

Customer:	PNN	L/Ha	lude	Date:	117/04)
Ice chest # or description	sml s	/	0		7	
*Ice chest scanned for activity?	3-7					
Custody seals on ice chest intact?	y,					
Custody seals dated?	yu					
Custody seals signed?	y					
Thermometer number	6536					
Thermometer:	10:10					
Thermometer:	10:45					
Thermometer reading	5°C					
Correction factor	4					
**Actual temperature	500					
Custody seals on samples?	745					
Custody seals dated?	y.					
Custody seals signed?	7					

* = If activity indicated, perform wipe test and record alpha; beta/gamma reading in cpm. ** = Record temperature in degrees Celsius.	
Technician:	
Comments:	

EBERLINE

RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

Date/Time received 9/10/04 10:25 Coc No. BOY-0	Richard State WA
Date/Time received 9/10/04 10:25 Coc No. BOY-0	02-2,3,4,5,6,8,9,10
Container I.D. No. Sml-5/0 /Sml22 Requested TAT (Da	rys) 45 P.O. Received Yes [] No []
INSPECTION	
 Custody seals on shipping container intact? 	Yes [No [] N/A []
Custody seals on shipping container dated & signed?	Yes [صر] No[] N/A[]
3. Custody seals on sample containers intact?	Yes [] No [] N/A []
 Custody seals on sample containers dated & signed? 	Yes [No [] N/A []
5 Booking material is:	Wet [60] Dry []
6. Number of samples in shipping container: 13	Sample Matrix
7. Number of containers per sample:	(Or see CoC)
8. Samples are in correct container Ye	es [7] No []
9 Paperwork agrees with samples? Ye	es [
10 Samples have: Tage [] Hazard labels [] Rad la	beis [] Appropriate sample labels []
11 Samples are: In good condition [54° Leaking []	Broken Container [] Missing []
12. Samples are: Preserved [] Not preserved []	pH Preservative
13. Describe any anomalies:	
13. Desailed any answer	
14. Was P.M. notified of any anomalies? Yes [] No [] Date
15. Inspected by Date:	9/16/04 Time: 4:15
Customer Sample	stomer Sample No. cpm mR/hr wipe
No. cpm mR/hr wipe	
lon Chamber Ser. No.	Calibration date
•	Calibration date
Alpha Meter Ser. No.	
Beta/Gamma Meter Ser. No.	Calibration date

EBERLINE,

RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

Client:			
Date/Time received 7/1 // 54 7.1			
Container I.D. No. Sv. 553 Requested TAT (Days) P.O. Received Yes [] No	[]		
INSPECTION			
1. Custody seals on shipping container intact? Yes [> No [] N/A	[]		
Custody seals on shipping container dated & signed? Yes [P No [] N/A	[]		
Res [Yes [
4 Custody seals on sample containers dated & signed? Yes [/] No [] N/A	[]		
₩et [ዏ] Dry L J			
Sample Matrix			
7. Number of containers per sample: (Or see CoC)			
8 Samples are in correct container Yes [[No []			
Yes [\(\sqraps \) No []			
Tana () Hazard labels () Rad labels () Appropriate sample labels ()			
Leaking Broken Container Missing			
11. Samples are: Ill good contract / 12. Samples are: Preserved [] pH Preservetive			
13. Describe any anomalies:			
14. Was P.M. notified of any anomalies? Yes [] No [] Date			
14. Was P.M. notified of any anomalics. Date: 9/11/54 Time:			
Customer Sample			
Customer Sample Customer Sample No. cpm mR/hr v	vipe		
Customer Sample Customer Sample	vipe		
Customer Sample Customer Sample No. cpm mR/hr v	vipe		
Customer Sample Customer Sample No. cpm mR/hr v	vipe		
Customer Sample Customer Sample No. cpm mR/hr v	vipe		
Customer Sample Customer Sample No. cpm mR/hr v	vipe		
Customer Sample Customer Sample No. cpm mR/hr v	vipe		
Customer Sample Customer Sample No. cpm mR/hr v	vipe		
Customer Sample Customer Sample No. cpm mR/hr v	vipe		
Customer Sample No. cpm mR/hr wipe No. cpm mR/hr vipe No. cpm mR/hr vi			
Customer Sample No. cpm mR/hr wipe No. cpm mR/hr vipe No. cpm mR/hr vi			
Customer Sample No. cpm mR/hr wipe No. cpm mR/hr vipe No. cpm mR/hr vi			
Customer Sample No. cpm mR/hr wipe No. cpm mR/hr vipe No. cpm mR/hr vi			





30 October 2004

Joan Kessner Bechtel-Hanford, Inc. 3190 Washington Way MSIN H9-03 Richland, WA 99352

Subject: Contract No. 630

Analytical Data Package

Dear Ms. Kessner:

Enclosed are the hard copy analytical reports for the batch number/fraction indicated (marked X) in the following table:

LvLl Batch #	0409L677
SDG#	H2724
SAF#	B03-018
Date Received	9-18-04
# Samples	16
Matrix	Water
Volatiles	X
Semivolatiles	
Pest/PCB	
PAH	
DRO/KRO/GRO	
GC Alcohols	
Herbicides	
Metals	X
Inorganics	Χ

The electronic data deliverable (EDD) will be emailed shortly. If you have any questions, please don't hesitate to contact me at (610) 280-3012.

Sincerely,

Lipnville Laboratory Incorporated

Orlette S. Johnson



Lionville Laboratory, Inc. VOA ANALYTICAL DATA PACKAGE FOR TNUHANFORD B03-018 H2724

DATE RECEIVED: 09/18/04

LVL LOT # :0409L677

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B1B3V0	002	— — W	04LVK226	09/15/04	N/A	09/27/04
B1B3V2	004	W	04LVK225	09/15/04	N/A	09/24/04
B1B3V2	004 MS	W	04LVK226	09/15/04	N/A	09/27/04
B1B3V2	004 MSD	W	04LVK226	09/15/04	N/A	09/27/04
B1B3V4	006	W	04LVK225	09/15/04	N/A	09/24/04
B1B3V6	008	W	04LVK225	09/15/04	N/A	09/24/04
B1B3T6	010	W	04LVK225	09/15/04	N/A	09/24/04
B1B440	011	W	04LVK225	09/15/04	N/A	09/24/04
B1B441	012	W	04LVK225	09/15/04	N/A	09/24/04
B1B442	013	W	04LVK225	09/15/04	N/A	09/24/04
B1B3T8	015	W	04LVK226	09/16/04	N/A	09/27/04
B1B439	016	W	04LVK226	09/16/04	N/A	09/27/04
LAB QC:						
VBLKWY	MB1	W	04LVK226	N/A	N/A	09/27/04
VBLKWY	MB1 BS	W	04LVK226	N/A	N/A	09/27/04
VBLKXL	MB1	W	04LVK225	N/A	N/A	09/24/04



Client: TNU-HANFORD B03-018

LVL #: 0409L677

SDG/SAF # H2724/B03-018

W.O. #: 11343-606-001-9999-00 **Date Received:** 09-18-2004

GC/MS VOLATILE

Ten (10) water samples were collected on 09-15,16-2004.

The samples and their associated QC samples were analyzed according to criteria set forth in Lionville Laboratory SOPs based on SW 846 Method 8260B for TCL volatile target compounds on 09-24,27-2004.

The following is a summary of the QC results accompanying these sample results and a description of any problems encountered during their analyses:

- 1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy with the exception of a discrepancy, which has been noted in the Sample Receipt Record.
- 2. Samples were analyzed within required holding time.
- 3. Non-target compounds were detected in the samples.
- 4. All surrogate recoveries were within acceptance criteria.
- 5. All matrix spike recoveries were within acceptance criteria.
- 6. All blank spike recoveries were within acceptance criteria.
- 7. Internal standard area and retention time criteria were met.
- 8. "I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."

Iain Daniels

Laboratory Manager

Lionville Laboratory Incorporated

som\group\data\voa\tnu-hanford\0409-677.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 42 pages. 02

GLOSSARY

DATA QUALIFIERS

- U = Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.
- Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.
- E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- **D** = Identifies all compounds identified in an analysis at a secondary dilution factor.
- I = Interference.
- NQ = Result qualitatively confirmed but not able to quantify.
- N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.
- X = This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closes internal standard).
- Y = Additional qualifiers used as required are explained in the case narrative.

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GLOSSARY

ABBREVIATIONS

BS = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spike solutions and carried through all the steps in the method. Spike recoveries are reported.

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

DL = Suffix added to sample number to indicate that results are from a diluted analysis.

NA = Not Applicable.

DF = Dilution Factor.

NR = Not Required.

SP, Z = Indicates Spiked Compound.

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TECHNICAL FLAGS FOR MANUAL INTEGRATION

Manual quan modifications or integrations are performed routinely to improve the data quality for a variety of technical reasons. Documentation of these modifications should be clear and concise. The following 'flags' are used to indicate the technical reasons for quan modifications:

- MP Missed Peak: Manually added peak not found by automatic quan program.
- PA Peak Assignment: Quan report was changed to reflect correct peak assignment.
- RI Routine Integration: Routine integrations are performed for some analytes that are consistently integrated improperly by the automatic integration programs. Examples are the Dichlorobenzene isomers on the VOA packed column and Benzo (b) fluoranthene /Benzo (k) fluoranthene which are poorly resolve on the BNA column.
- SP Split Peak: The automatic integration improperly split the peak; a manual integration was performed to get the correct area.
- CB Co-elution/ Background: Peak was manually integrated to eliminate contribution from co-eluting compounds, background signal, or other interference.
- PI Proper Integration: A peak with poor or inconsistent integration (i.e., excessive tail) was properly integrated manually.

LVL-21-21-035/A-08/93



Lionville Laboratory, Inc.

Volatiles by GC/MS, HSL List

Report Date: 10/07/04 15:43 Client: TNUHANFORD B03-018 H2724 Work Order: 11343606001 Page: 1a RFW Batch Number: 0409L677

	Cust ID:	B1B3V0)	B1B3V2	!	B1B3V2		B1B3V2		B1B3V4	ļ	B1B3V6	5
Sample	RFW#:	002	!	004		004 MS		004 MSD)	006	5	008	3
Information	Matrix:	WATER	•'	WATER		WATER		WATER		WATER		WATER	
	D.F.:	1.0	0	1.0	0	1.0	0	1.0	0	1.0	00	1.0	20
	Units:	ug/L	_	ug/L	-	ug/L	-	ug/L	_	ug/I	_	ug/I	
		-5, -		-5, -		-5, -		-5, -		37	_	۵5/ -	_
	Toluene-d8	95	8	96	૪	96	%	94	જ	93	왕	94	૪
Surrogate Bromoflu	orobenzene	98	४	95	ક	94	४	94	8	92	%	93	%
Recovery 1,2-Dichlor	roethane-d4	94	8	88	કૃ	92	8	89	%	87	%	86	%
			=fl		=fl		=f1	========	=fl	========	=f1		==fl
Chloromethane		10	U	10	U	10	U	10	U	10	U	10	บ
Bromomethane		10	U	10	U	10	U	10	U	10	U	10	U
Vinyl Chloride		10	U	10	Ü	10	U	10	U	10	U	10	U
Chloroethane		10	U	10	U	10	U	10	U	10	U	10	U
Methylene Chloride		5	U	5	U	5	U	5	U	5	U	5	Ū
Acetone		10	U	10	U	10	U	10	U	10	Ū	10	U
Carbon Disulfide		.5	U	5	U	5	U	5	U	5	U	5	U
1,1-Dichloroethene		5	U	5	Ū	99	%	80	8	5	U	5	U
1,1-Dichloroethane		5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichloroethene (tot	:al)	5	U	5	U	5	U	5	U	5	U	5	U
		1	J	1	J	2	J	2	J	1	J	5	ט
1,2-Dichloroethane		5	U	5	Ū	5	U	5	U	5	U	5	U
2-Butanone		10	U	10	U	10	U	10	U	10	U	10	U
1,1,1-Trichloroethane_		5	U	5	U	5	U	5	U	5	U	5	Ü
Carbon Tetrachloride		6		5		5		5		8		5	Ü
Bromodichloromethane		5	U	5	U	5	U	5	U	5	U	5	Ū
1,2-Dichloropropane		5	U	5	U	5	U	5	U	5	U	5	Ü
cis-1,3-Dichloropropene	e	5	U	5	U	5	U	5	U	5	U	5	Ū
Trichloroethene		5	U	5	U	98	%	79	%	5	U	5	U
Dibromochloromethane		5	U	5	U	5	U	5	U	5	U	5	U
1,1,2-Trichloroethane_		5	U	5	U	5	U	5	U	5	U	5	U
Benzene		5	U	5	U	98	¥	81	%	5	Ū	5	U
Trans-1,3-Dichloroprope	ene	5	U	5	U	5	U	5	U	5	U	5	U
Bromoform		5	U	5	U	5	U	5	U	5	U	5	U
4-Methyl-2-pentanone		10	U	10	U	10	Ū	10	U	10	U	10	U
2-Hexanone		10	U	10	U	10	U	10	U	10	U	10	U
Tetrachloroethene		5	U	5	U	5	U	5	U	5	U	5	Ü
1,1,2,2-Tetrachloroetha	ane	5	U	5	U	5	U	5	U	5	Ū	5	Ū
Toluene		5	U	5	U	90	૪	76	%	5	ับ	5	Ü
*= Outside of EPA CLP (QC limits.											_	-

RFW Batch Number: 04	09L677 Clie	ent: TNUH	ANFORI	D B03-018	H272	4 Work	rder	: 11343606	5001	Page: 1b)		
	Cust ID:	B1B3V0	-	B1B3V2		B1B3V2		B1B3V2		B1B3V4	_	B1B3V6	5
	RFW#:	002		004		004 MS	3	004 MSI		006	;	008	3
Chlorobenzene		5	U	5	U	92	ું	76	%	5	U	<u> </u>	U
Ethylbenzene		5	U	5	U	5	U	5	U	5	Ū		Ü
Styrene		5	U	5	U	5	U	5	U	5	Ū		Ü
Xylene (total)		5	U	5	U	5	U	5	U	_	Ū		Ū
*= Outside of EPA CL	P QC limits.										-		J

Report Date: 10/07/04 15:43

Lionville Laboratory, Inc.

Volatiles by GC/MS, HSL List

RFW Batch Number: 0409L677 Client: TNUHANFORD B03-018 H2724 Work Order: 11343606001 Page: 2a

	Cust ID:	B1B3T6	5	B1B44()	B1B441	•	B1B442	2	B1B3T8	3	B1B43	9
Sample Information	RFW#: Matrix:	010 WATER)	01 1 WATER	L	012 WATER	:	013 WATER	i	019 WATER	i .	010 WATER	-
	D.F.:	1.0	0	1.0	0	1.0	0	1.0	0	1.0	0	1.0	00
	Units:	ug/I	ı	ug/I		ug/I	ı	ug/L	ı	ug/I	1	ug/l	Ĺ
	Toluene-d8	96	४	92	8	99	જ	96	 %	96	8	92	 %
Surrogate Bromofl	uorobenzene	96	%	89	8	92	ક	93	ક	84	8	97	ક
<u>-</u>	roethane-d4	88	8	85	ક્ષ	. 86	8	88	^ફ	83	%	88	ક
=======================================			=f1=			========	=fl=		=fl:		=f1	========	==fl
Chloromethane		10	Ü	10	U	10	U	10	U	10	U	10	U
Bromomethane		10	U	10	U	10	U	10	U	10	U	10	Ū
Vinyl Chloride		10	U	10	U	10	Ū	10	U	10	U	10	บ
Chloroethane		10	U	10	U	10	U	10	U	10	U	10	U
Methylene Chloride		5	Ü	5	U	5	U	5	Ū	5	U	5	U
Acetone		10	Ü	10	U	10	U	10	U	10	U	10	Ū
Carbon Disulfide		5	U	5	U	5	U	5	U	5	U	5	U
1,1-Dichloroethene		5	U	5	U	5	U	5	U	5	U	5	Ū
1,1-Dichloroethane		5	U	5	U	5	U	5	U	5	U	5	Ū
1,2-Dichloroethene (to	tal)	5	U	5	U	5	U	5	U	5	บ	5	Ü
Chloroform		2	J	5	U	5	U	5	Ū	1	J	5	Ū
1,2-Dichloroethane		5	U	5	U	5	U	5	U	5	U	5	U
2-Butanone		10	U	10	U	10	U	10	U	10	U	10	Ū
1,1,1-Trichloroethane		5	U	5	U	5	U	5	U	5	U	5	Ū
Carbon Tetrachloride		7		5	U	5	U	5	U	1	J	5	U
Bromodichloromethane		5	U	5	U	5	U	5	U	5	U	5	Ü
1,2-Dichloropropane		5	U	5	U	5	U	5	U	5	U	5	IJ
cis-1,3-Dichloropropen	ie	5	U	5	U	5	U	5	U	5	U	5	Ū
Trichloroethene		5	U	5	Ŭ	5	U	5	U	5	U	. 5	บ
Dibromochloromethane		5	U	5	U	5	U	5	U	5	U	5	Ŭ
1,1,2-Trichloroethane_		5	U	5	U	5	U	5	U	5	U	5	U
Benzene		5	U	5	U	5	U	5	U	5	U	5	Ü
Trans-1,3-Dichloroprop	ene	5	U	5	U	5	U	5	U	5	U	5	U
Bromoform		5	U	5	U	5	U	5	U	5	U	5	U
4-Methyl-2-pentanone_		10	U	10	U	10	U	10	U	10	Ū	10	U
2-Hexanone_		10	U	10	U	10	U	10	U	10	U	10	Ü
Tetrachloroethene		5	U	5	U	5	Ū	5	Ū	5	Ū	5	Ü
1,1,2,2-Tetrachloroeth	nane	5	U	5	U	5	U	5	U	5	U	5	Ü
Toluene		5	U	5	U	5	U	5	Ū	5	Ü	5	Ü
*= Outside of EPA CLP	QC limits.									J	•	J	J

RFW Batch Number: 0409L677	Client: TNUHANFOR	D B03-018 H2724	Work Order:	11343606001	Page: 2b	
Cust I	D: B1B3T6	B1B440	B1B441	B1B442	B1B3T8	B1B439
RFW	#: 010	011	012	013	015	016
Chlorobenzene	5 U	5 Ŭ	5 Ü	5 U	5 U	5 U
Ethylbenzene	5 Ŭ	5 U	5 Ü	5 Ü	5 U	5 U
Styrene	5 U	5 U	5 U	5 U	5 U	5 U
<pre>Xylene (total) *= Outside of EPA CLP QC limits</pre>	. 5 U	5 Ü	5 Ü	5 U	5 Ü	5 U

Report Date: 10/07/04 15:43

Lionville Laboratory, Inc.

Volatiles by GC/MS, HSL List

RFW Batch Number: 0409L677 Client: TNUHANFORD B03-018 H2724 Work Order: 11343606001 Page: 3a

Cust ID:	VBLKWY		VBLKWY BS		VBLKXL		
Sample RFW#: Information Matrix:	04LVK226-M	B1	04LVK226-M WATER	в1	04LVK225-M	31	
D.F.:	1.0	0	1.0	0	1.0)	
Units:	ug/L		ug/L		ug/L		
5.1.2.2.	-5, -		5,		3,		
Toluene-d8	97	8	96	ક	95	ક	
Surrogate Bromofluorobenzene	100	%	100	%	98	%	
Recovery 1,2-Dichloroethane-d4	93	8	94	8	92	૪	
		=f1		=f1	=========	=fl=:	flfl
Chloromethane		U		U	10	U	
Bromomethane	10	U	10	U	10	U	
Vinyl Chloride	10	U	10	U	10	U	
Chloroethane		U	10	U	10	U	
Methylene Chloride	- 5	U	1	J	5	U	
Acetone	10	U	10	U	10	U	
Carbon Disulfide	- .5	U	5	Ū	5	U	
1,1-Dichloroethene	- 5	U	97	%	5	U	
1,1-Dichloroethane	- 5	U	5	U	5	U	
1,2-Dichloroethene (total)		U	5	U	5	U	
Chloroform		U	5	U	5	U	
1,2-Dichloroethane	_ 5	U	5	U	5	Ū	
2-Butanone	10	U	10	U	10	U	
1,1,1-Trichloroethane	5	U	5	U	5	U	
Carbon Tetrachloride	5	U	5	U	5	U	
Bromodichloromethane	5	U	5	Ū	5	U	
1,2-Dichloropropane	_ 5	U	5	U	5	U	
cis-1,3-Dichloropropene	_ 5	U	5	U	5	U	
Trichloroethene	_ 5	U	97	%	. 5	U	
Dibromochloromethane	5	U	5	Ū	5	U	
1,1,2-Trichloroethane	5	U	5	U	5	U	
Benzene	5	U	96	ò	5	Ü	
Trans-1,3-Dichloropropene	_ 5	U	5	U	5	U	
Bromoform	_ 5	U	5	U	5	U	
4-Methyl-2-pentanone	10	U	10	U	10	U	
2-Hexanone	_ 10	U	10	U	10	U	
Tetrachloroethene	5	U	5	U	5	U	
1,1,2,2-Tetrachloroethane	5	U	5	U	5	U	
Toluene	5	U	93	%	5	U	

*= Outside of EPA CLP QC limits.

RFW Batch Number: 0409L677 Client: TNUHANFORD B03-018 H2724 Work Order: 11343606001 Page: 3b Cust ID: VBLKWY VBLKWY BS VBLKXL RFW#: 04LVK226-MB1 04LVK226-MB1 04LVK225-MB1 Chlorobenzene 5 U 94 % 5 U 5 U 5 U Ethylbenzene 5 U Styrene 5 U 5 U 5 U 5 U 5 U 5 U Xylene (total)

*= Outside of EPA CLP QC limits.

EPA	SAMPLE	NO.
		

TENTATIVELY IDENTIFIED COMPOUNDS	 B1B3V0
Lab Name: Lionville Labs, Inc. Contract: 11343	
Lab Code: Lionvi Case No.:	SAS No.: SDG No.:
Matrix: (soil/water) WATER	Lab Sample ID: 0409L677-002
Sample wt/vol: 5.00 (g/mL) ML	Lab File ID: <u>k092707</u>
Level: (low/med) <u>LOW</u>	Date Received: 09/18/04
% Moisture: not dec	Date Analyzed: 09/27/04
Column: (pack/cap) <u>CAP</u>	Dilution Factor: 1.00
	NTRATION UNITS: or ug/Kg) <u>ug/L</u>
CAS NUMBER COMPOUND NAME	RT EST. CONC. Q

	EPA SAMPLE NO.	
	B1B3V2	
	_ SDG No.:	
ID:	0409L677-004	
:	k092411	
ed:	09/18/04	
ലർ •	09/24/04	

1	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	
i	===============	=======================================	======	=========	=====	
ί	1.		ĺ			
1						

EPA	SAMPLE	NO.	
 	7.4		

IBMIAIIVEDI IDEE	VIIIIED COMPOUNDS		B1B3V4	
Lab Name: Lionville Labs, Inc	c. Contract: <u>11343606</u>	!		
Lab Code: <u>Lionvi</u> Case No.:	SA.	S No.:	_ SDG No	·:
Matrix: (soil/water) WATER	_ Lal	b Sample ID:	0409L677-0	006
Sample wt/vol: 5.00	g/mL) <u>ML</u> Lal	b File ID:	k092412	
Level: (low/med) <u>LOW</u>	Dat	te Received:	09/18/04	
% Moisture: not dec.	Dai	te Analyzed:	09/24/04	
Column: (pack/cap) <u>CAP</u>	Di	lution Facto	or: 1.00	
Number TICs found: <u>1</u>		ATION UNITS: ug/Kg) <u>ug/L</u>		
CAS NUMBER		iiiiii	ST. CONC.	
1. SILOXAN		= ===== == 22.502 7	=======================================	J

VOLATILE ORGANICS ANALYSIS SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO	•
B1B3V6	
SDG No.:	·

Lab Name: Lionville Labs, Inc. Contract: 11343606001

Lab Code: Lionvi Case No.: ____ SDG No.: ____

Matrix: (soil/water) WATER Lab Sample ID: 0409L677-008

Sample wt/vol: 5.00 (g/mL) $\underline{\text{ML}}$ Lab File ID: $\underline{\text{k092413}}$

Level: (low/med) LOW Date Received: 09/18/04

% Moisture: not dec. ____ Date Analyzed: 09/24/04

Column: (pack/cap) CAP Dilution Factor: 1.00

CONCENTRATION UNITS:

Number TICs found: 0 (ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	 EST. CONC.	 Q
=============	=======================================	=======		=====
1.				
				lİ

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS SHEET TENTATIVELY IDENTIFIED COMPOUNDS

B1B3T6	
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Lab Name: Lionville Labs, Inc. Contract: 11343606001

Lab Code: Lionvi Case No.: ____

SAS No.: _____ SDG No.: ____

Matrix: (soil/water) WATER____

Lab Sample ID: <u>0409L677-010</u>

Sample wt/vol: $\underline{5.00}$ (g/mL) \underline{ML} Lab File ID: $\underline{k092414}$

Level: (low/med) LOW

Date Received: 09/18/04

% Moisture: not dec. _____

Date Analyzed: 09/24/04

Column: (pack/cap) CAP

Dilution Factor: 1.00

CONCENTRATION UNITS:

-Number TICs found: 1

(ug/L or ug/Kg) <u>ug/L</u>

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
	=======================================	=======================================	======	=========	====
ĺ	1.	SILOXANE	22.503	5	J
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EPA	SAMPLE	NO.		
			 	—
B1B44	10			i

Lab Name: Lionville Labs, Inc. Contract: 113	B1B440
Lab Code: Lionvi Case No.:	SAS No.: SDG No.:
Matrix: (soil/water) WATER	Lab Sample ID: 0409L677-011
Sample wt/vol: 5.00 (g/mL) ML	Lab File ID: k092415
Level: (low/med) <u>LOW</u>	Date Received: 09/18/04
% Moisture: not dec	Date Analyzed: 09/24/04
Column: (pack/cap) <u>CAP</u>	Dilution Factor: 1.00
	NCENTRATION UNITS: g/L or ug/Kg) <u>ug/L</u>
CAS NUMBER COMPOUND NAME	RT EST. CONC. Q
1.	

EPA	SAMPLE	NO.	

	IMINITATIVEDI IDENTIFICACIONE	 B1B441
Lab	Name: Lionville Labs, Inc. Contract: 113	
Lab	Code: Lionvi Case No.:	SAS No.: SDG No.:
Matr	ix: (soil/water) WATER	Lab Sample ID: 0409L677-012
Samp	le wt/vol:	Lab File ID: k092416
Leve	1: (low/med) <u>LOW</u>	Date Received: 09/18/04
% Mo	isture: not dec	Date Analyzed: 09/24/04
Colu	mn: (pack/cap) <u>CAP</u>	Dilution Factor: 1.00
Numb		CENTRATION UNITS: /L or_ug/Kg)_ <u>ug/L</u>
	CAS NUMBER COMPOUND NAME	RT EST. CONC. Q
	1.	

EPA	SAMPLE	NO.		,
1			i	- 1
B1B44	12			ļ

Lab Name: Lionville Labs, Inc. Contract: 1134	B1B442
Lab Code: Lionvi Case No.:	SAS No.: SDG No.:
Matrix: (soil/water) <u>WATER</u>	Lab Sample ID: 0409L677-013
Sample wt/vol: $\underline{5.00}$ (g/mL) \underline{ML}	Lab File ID: <u>k092417</u>
Level: (low/med) <u>LOW</u>	Date Received: 09/18/04
% Moisture: not dec	Date Analyzed: 09/24/04
Column: (pack/cap) <u>CAP</u>	Dilution Factor: 1.00
	ENTRATION UNITS: L or ug/Kg) <u>ug/L</u>
CAS NUMBER COMPOUND NAME	RT EST. CONC. Q
1.	

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS SHEET TENTATIVELY IDENTIFIED COMPOUNDS

B1B3T8	

Lab Name: Lionville Labs, Inc. Contract: 11343606001	
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Lab Code:	<u>Lionvi</u>	Case No.:	SAS No.:	SDG No.: _
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Matrix: (soil/water) WATER Lab Sample ID: 0409L677-015

Sample wt/vol: $\underline{5.00}$ (g/mL) $\underline{\text{ML}}$ Lab File ID: $\underline{\text{k092705}}$

Level: (low/med) LOW Date Received: 09/18/04

% Moisture: not dec. _____ Date Analyzed: 09/27/04

Column: (pack/cap) CAP Dilution Factor: 1.00

CONCENTRATION UNITS:

Number TICs found: 0 (ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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VOLATILE ORGANICS ANALYSIS SHEET TENTATIVELY IDENTIFIED COMPOUNDS

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EPA SAMPLE NO.

Lab Name: <u>Lionville Labs, Inc.</u> Contract: <u>11343</u>	B1B439 606001
Lab Code: <u>Lionvi</u> Case No.:	SAS No.: SDG No.:
Matrix: (soil/water) <u>WATER</u>	Lab Sample ID: <u>0409L677-016</u>
Sample wt/vol: 5.00 (g/mL) ML	Lab File ID: <u>k092706</u>
Level: (low/med) <u>LOW</u>	Date Received: 09/18/04
% Moisture: not dec	Date Analyzed: 09/27/04
Column: (pack/cap) <u>CAP</u>	Dilution Factor: 1.00
	ntration units: or ug/Kg) <u>ug/L</u>
CAS NUMBER COMPOUND NAME	RT EST. CONC. Q

Number TICs found: 0

VOLATILE ORGANICS ANALYSIS SHEET TENTATIVELY IDENTIFIED COMPOUNDS

,	EPA SAMPLE NO.	
UNDS	VBLKWY	
11343606001	i	
SAS No.:	SDG No.:	
Lab Samp	ole ID: 04LVK226-MB1	
Lab File	e ID: <u>k092704</u>	
Date Rec	eived: 09/27/04	
Date Ana	lyzed: <u>09/27/04</u>	
Dilution	Factor: <u>1.00</u>	
CONCENTRATION (ug/L or ug/Kg)		

Lab Name: Lionville Labs, Inc. Contract: 11343606001 SAS No.: _ Lab Code: Lionvi Case No.: ____ Lab Sample Matrix: (soil/water) WATER___ Lab File I Sample wt/vol: 5.00 (g/mL) ML Date Receiv Level: (low/med) LOW Date Analy % Moisture: not dec. _____ Dilution F Column: (pack/cap) <u>CAP</u> CONCENTRATION UN

COMPOUND NAME RTEST. CONC. CAS NUMBER

EPA	SAMPLE NO.	
VBLK	ī	
	SDG No.:	

	VBLKXL
Lab Name: Lionville Labs, Inc. Contract: 11	
Lab Code: <u>Lionvi</u> Case No.:	SAS No.: SDG No.:
Matrix: (soil/water) WATER	Lab Sample ID: 04LVK225-MB1
Sample wt/vol: 5.00 (g/mL) ML	Lab File ID: <u>k092409</u>
Level: (low/med) <u>LOW</u>	Date Received: 09/24/04
% Moisture: not dec	Date Analyzed: 09/24/04
Column: (pack/cap) <u>CAP</u>	Dilution Factor: 1.00
	NCENTRATION UNITS: g/L or ug/Kg) <u>ug/L</u>
CAS NUMBER COMPOUND NAME	RT EST. CONC. Q

Lionville Labor	atory Us	se Only	Custo	ody Tr	ans	ste	r	tec(ora/	/Lai	D V	IV U	IK	חכ	ųи	C3	L Pa	age _	UI			1	21	V	Ί	1
04/096	677	7		FIELD F	PERSC	ONNE	L: C	OMPLI	ETE O	NLY S	HAD	ED A	REA	S					D		E	۴	C "	DNVILLE H	ABORATOR	RY INC.
المالية	1/0	u.C.A	D SAF#	72 11-01	/	202-	or &	Retrige	rator#		-1	7						2	2		2	2	2	2	1	
				100 7 00	<i>,</i>	<u> </u>	<u> </u>	<u>.</u>		U	iquid	G						P	P		7	P	P	ρ	C	ρ
Est. Final Pro	J. Samp	ling Date	- 001-99	99-00				#/Type	Containe	er S	Solid															
			- 001 17	[] 00						L	iquid	40.						500	500		500	500	500	500	500	20
Project Conta	ct/Phon	• #	03					Volume	•	- [Solid															
QC SPLL	oratory	Project M	lanager 05	30 Da	15			Preser	vatives			Hel	17				,	11/03	HALB	1 1	かっ		1/254		42124	
				•	1			ANALY	/CEC					ANIC				3		ORG	IC 4	ALK	NOS	307	70%	POT
Date Rec'd	9/18	104	Date Due	10/18	704	····		REQUE				V 0 V	BNA	Pest/ PCB	Herb				Metal		*% <u></u>		1005			SAN
MATRIX						Ma	trix								 		Lionv		T -	ory Use	Only	<u>y</u>	 	1		т
CODES: S - Soil SE - Sediment SO - Solid	Lab ID		Client ID/Desc	cription		Cho (•	C sen /)	Matrix	Date Collect	ted Coli	ime lected	Hrzoo						me@so	mEO to		D)I	TARK	INSN2	ZTTDS	ITOX	
SL - Sludge		5 . 5	70	-\		MS	MSD	1 1	7-15-1	,,,,,	45	0					-	1		13014	y	<u> </u>	<u> </u>		<u> </u>	
W - Water O - Oil	001	RIF	3379 CF	<u>-)</u>	-	_	_	W_	775-0	7 //	02-	2				 		<u> </u>	1.16			—			1	\vdash
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Solids DL - Drum	003		<u> </u>	•)					1-1		-	-		ļ	-	-		1	+	1		+-	+-	+ -	-	+
Liquids	004		V2		1				1-1		*	3		 		 		 	1	pabil	<u> </u>		++-	+	+	+
Leachate WI - Wipe	005		V3(<u>F)</u>		<u> </u>				09	714			<u> </u>				-	17	יינייף קון	_	+-		+	+-	+
X - Other F - Fish	006		V4		<u>.</u>						<u> </u>	3								1/2010		+1	1	+ 1	+-	+-
	007		V5	(F)		<u> </u>				0	800	ļ					-	1	17	1113011	4	 	ļ.,	1.	+	+
	008		V6								<u>L</u>	3	ļ	<u> </u>		ļ		-	1-1-		1		11	1	+	+
	009		T5	(F)					$\perp \perp$		044		-			 		1	17	sp4501	re	-		-	┼	┼
	010	1	T6					1	<u> </u>	<u> </u>	<u>T </u>	3				<u> </u>			<u> </u>	<u> </u>		<u> </u>	11	1.	<u> </u>	<u> </u>
	ı		natrix 6		•		10	MEVISIC UN OY	ons: . 1 . 2	u ch	ient	- PN	1,5	SAE#	<u> </u>	P.03)	-01	8′	1	amples) Shippe	were:		T:	amper Re) Prese	only esistant Se nt on O	Outer
1	1		b, Se, Sn,						. 3			·					· · · · · ·	<u></u>	_ _	virbill#_	5	-	P	ackage	oken on Y or	r N
ICO = C			- 4						<u> </u>				3) Amble) Receiv	egin	Good		•		or N						
				_ 5 _ 6										4	Condition Sample Properly	es	$\mathcal{C}_{\mathcal{C}}$		4) Unbroken on Sample Y or COC Record Pres							
Relinquishe by	d	Receiv	ed Date	Time	iL	elinqu by			Receiv by			Date	<u> </u>	me	Sai	crepand	abels a	and		i) Receiv	Y oved Wi	or N		Jpon Sa	ample R	
Ful Es		Am	& 9-Bd	1 1005	-		MPC ASTI	OS TE				WD WD	1	=	•	C Reco	ord? Y	or N	' '	-lolding ⁻		or N		Cooler Temp		•c
1 1		4	~ _	1115			7311			1	RE	ואיי	111	EN	<u></u>											

04096	677			FIELD	PERSC	NNE	EL: C	OMPLE	ETE ONL	Y SHAD	DED A	REA	S				D	D		E	F	6- UI	ONVILLE LA	BORATOI T	RY INC.
Client	JU H	antord	DOU	1-002				Refrige	rator #		1						2	2		2	2	2	2	Ĭ	
						•	4 4 5		01-1	Liquid	ک						P	1		P	P	P	P	G	P
Est. Final Proj. Sampling Date									#/Type Container			4												jan L	
Project # D-alest Canto	roject #									Liquid	40			wai.			510	500		500	500	200	ששב	500	w
		Project Manage				9		Volume		Solid						74.2								ا	
and the second second		Del						Preser	vatives		Hel						HAZ			Habs	 _ _ _ _ _ _ _	Br		1/2504	-
							-, (ANALY	'SES		-		ANIC	ه ا	-		3	INC	ORG	TC	RYC	NOZ	7-	Tax	40
ate Rec'd			Date Due _					REQUE			δ V	BN	PcB PCB	Herb	1. 11		metals	Metal	S	TC AND)	1/3	Tos		E
	<u> </u>					Ma	trix						<u> </u>	1		Lionv			ory U	se Onl	у	1			
ATRIX DDES:	Lab					Q	C	8.6 - A-dr.	Date	Time	H						8	2		3	3	3	2	بر	
- Soil - Sediment	ID	Clie	ent ID/Descri	ption			/)	Matrix	Collected	Collected	HTEOO					}	med	eOro		EC C	TACK	CN3N3	ITAS	I 10%	
D - Solid - Sludge						MS	MSD				8						ž	٤		H	+)	h	17	1-1	<u> </u>
- Water - Oil	0//	B134	40					W	9-15-04	0850	3											<u> </u>			1
Air	012		141						1	0800	3							100					<u> </u>		L
Solids	0/3		142						上	1	3														1
- Drum Liquids	014	the state of the s	B3T7(f)						9-16-04	0833							1	W	7961	114					
Leachate	015		~8						1	L	3							1		(1	1	1	1	
- Wipe Other		B1B4) - 					1	1730	3														1
Fish	77.5							100																	
								· · · · · ·																	
																									L
pecial Instruc	lone:	<u> </u>					DATE	REVISIO	NS:											Lionv	ille Lab	oratory	/ Use C	nly	
•	!	a, Cr, Pb	o, Se, S	Sn,V,	Zn				2									- 1) Shipp land D	s were: oed elivered	_ or i	1) P: 2)	amper Re) Preser ackage) Unbrol	nt on O Y or ken on	outer r N Outer
:c0= 0	LIB	r, Noz, No	ان کار	, PO4,	FL				4									_ 3	3) Rece Condition	ived in	Good or N	3) 4)	ackage) Preser) Unbro	nton S Y o ken on	Sample or N
Relinquishe by	Date Ilme						ished		6 Received by		Date	ТІ	Time	Sa	crepano	abels a	and	ء ب=	Properly 5) Rece	y Prese Y eived W	rved or N ithin	C	OC Red Ipon Sa	cord Pr imple R	reseni
F.SE	, /	A-J	2/18/04	1005		·						-			C Reco	ord? Y	or N			Times			Cooler emp		

Custous Hallstel Necolultus Wolf Hallstel Necolultus

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pnnl SDG#	H272	.4		(CHAI	OF C	CUSTODY/SA	AMPLE A	ANALYSIS I	REQUEST		04-002-2
	DURATEK		I	 	110	Contact/Rec				Telephone No.	MSIN FAX	
SAF No. B04-002	M. HALL			 		Dot Stews Sampling O	art Prigin HAWFOKD	SITE	· · · · · · · · · · · · · · · · · · ·	S09-376-5056 Purchase Order/Charg	e Code	3600
Project Title							- SAUS			Ice Chest No. SML	510 Temp.	ä
ERDF SEPT 2004 Shinned To (Lah)	name of a second second			ente tournesses a suppose	.ersau wer . 19.197	Method of S	Shipment	11 00			No. 7920 9058	
TMA/RECRA	and the second of the second o	eleganore i	riting i contoctor de	e introduce page in encydd	man a 2 groups	Goyt Truc		ty: 45 Days		Offsite Property No.		
CERCLA POSSIBLE SAMP	LE HAZARD	S/REM	MARKS				S	PECIAL INSTE	RUCTIONS Ho	d Time	Total Activity Exemption:	Yes V No
Sample No.	Lab ID		Date	Time	No/Type	Container			Sample Anal	ysis		Preservative
B1B3T9 (F)		w	9-15-04	1102	1x500-mL	G/P	ICP Metals - 6010TR (Client List)				HNO3 to pH <2
B1B3V0 -	 	w	1/3-1		3x40-mL	aGs*	VOA - 8260A (TCL)	-				HCl or H2SO4 to pH <2 Cool 4C
B1B3V0	-	w		 	1x500-mL	G/P	ICP Metals - 6010TR (Client List)				HNO3 to pH <2
B1B3V0		w		- -	1x500-ml	. Р	IC Anions - 300.0	,				Cool 4C
B1B3V0		w			1x200-ml	G/P	Alkalinity - 310.1		·		****	Cool 4C
B1B3V0	 	w			1x300-ml	G/P	NO2/NO3 - 353.2					H2SO4 to pH <2 Cool 4C
B1B3V0	-	w			1x20-mL	P	Activity Scan					None
B1B3V0		W			2x1000-n	nL G/P	Gross Alpha		•			HNO3 to pH <2
B1B3V0		w			2x1000-r	nL G/P	Gross Beta					HNO3 to pH <2
B1B3V0		w			1x125-m	L G/P	Carbon-14		·			None
B1B3V0		W			4x1000-r	nl G/P	lodine-129					None
B1B3V0		w	4		2x1000-i	nL G/P	Radium -226					HNO3 to pH <2
Relinquished By Relinquished By	TEK Privalent		Sign 9/1	el 404 17/24	SEP Date /a: Date 3:3	1 5 2004 Time 2 5 Time	Received By	Doin O C	Sign Saras 9/16/0 9/17/04	Date/Time	S = Soil SE = Sediment SO = Solid SI = Sludee W = Water O = Oil A = Air	DS = Drum Solid DI. = Drum Liqui T = Tissue WI = Wine L = Liquid V = Vegetation X = Other
Relinquished By	me.		9-18		Dat	e/Time	Received By	0	9-18-0			
FINAL SAMP DISPOSITION		d Metho	od (e.g., Return				rocess)	~	Disposed By	· · · · · · · · · · · · · · · · · · ·	Date/Tim	

PNNL SDG.#	H272.	4:			CHAIN OF		B04-002-2
SAF No. B04-002		<u></u>	-		Contact/Requestor Dot Stewart	Telephone No. MSIN FAX 509-376-5056	
Sample No.	Lab ID		Date	Time	No/Type Container	Sample Analysis Preservat	
B1B3V0 .		W	9-15-14		1x250-mL G/P	Technetium-99	HCI to pH <2
B1B3V0		w			1x100-mL G/P	Total Uranium	HNO3 to pH <2
B1B3V0		w			1x500-mL G/P	TDS - 160.1	Cool 4C
B1B3V0		w	1	1	1x500-mL aGs*	TOX - 9020	H2SO4 to pH <2 Cool 4C
							Cool 4C
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Relinquished By DURKS	Prin		Sign	ed)	Date/Time /4/00 SEP 1 5 2004	EFIL FU	rix *
Relinquished By Relinquished By	50 C	x		/04 9(17/04	Date/Time Date/Time Date/Time	Received By Fred Sara Date/Time SE = Sertiment SO = Solid SL = Sludge W = Water Oil A = Air	DS = Drum Solid DI = Drum Lioni T = Tissue WI = Wine L = Lionid V = Vesetation X = Other
Relinquished By	20	0		110hrs	Date/Time	Received By- Date/Time	
FINAL SAMPI DISPOSITIO		Meth	od (e.g., Return	to customer, p	er lab procedure, used in pr	Disposed By Date/Tin	me

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D27217					. '		C.O.C.#					
PNNL			l	C	HAI	N OF (CUSTODY/SAMPLE ANALYSIS REQUEST B	04-002-3				
SDG #	H2724						Page 1	of <u>2</u>				
Collector	DURKTEK				quester Telephone No. MSIN FAX							
AF No.	F. M. HALL			· ····	:	Dot Stew Sampling O	Prigin HAFFOW SITE Purchase Order/Charge Code					
B04-002 Project Title		····			DTS - SAWS HB3 Tee Chest No. SAHL 510 Temp.							
ERDF SEPT 20 Shinned To (Lah)		arana ne	·	The Service of the Se		Method of	Shipment Bill of Lading/Air Bill No. 2920 9058					
TMA/RECRA	is Harekia Dekili awelik ilas	4.5%	1 8 1 12 12 13 15 15 15 15 15 15 15 15 15 15 15 15 15	(A) L (GASIBATIA)	. Cons	Goyt Tru	CK +9058	2469				
CERCLA POSSIBLE SAM	PLE HAZARI	DS/RE	MARKS				Priority: 45 Days SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption:	7. 00				
** **	•				1		Total Activity Exemption:	TES ENO				
					1							
	1			T		<u></u>						
Sample No.	Lab ID	•	Date			Container	Sample Analysis	Preservative				
B1B3V1 (F)	1	_	9-15-04	1/02	x500-ml		ICP Metals - 6010TR (Client List)	HNO3 to pH <2				
B1B3V2		W	.		x40-mL	aGs*	VOA - 8260A (TCL)	HCI or H2SO4 to pH <2 Cool 4C				
B1B3V2		W			x500-ml	L G/P	ICP Metals - 6010TR (Client List)					
B1B3V2		W		1	x500-ml	LP	IC Anions - 300.0					
B1B3V2		W			1x200-m1	L G/P	Alkalinity - 310.1	Cool 4C				
B1B3V2		W		 	1x300-m	L G/P	NO2/NO3 - 353.2	H2SO4 to pH <2				
B1B3V2		w	1-1-	11	1x20-mL	P	Activity Scan	Cool 4C None				
B1B3V2		w	 		2x1000-r	nL G/P	Gross Alpha	HNO3 to pH <2				
B1B3V2		w	 		2x1000-r	nL G/P	Gross Beta	HNO3 to pH <2				
B1B3V2		w		 	1x125-m	L G/P	Carbon-14	None				
B1B3V2		w		 	4×1000-r	mL G/P	lodine-129	None				
B1B3V2	:	w			2x1000-r	mL G/P	Radium -228	HNO3 to pH <2				
	<u>- </u>			1 9								
Relinquished By		5	Sign	10.11	7		Received By Print Sign Date/Time Matri	x *				
Relinquished By	Fo	/	\$p	9/16/0	Date	1 5 2004 e/Time o: 25 e/Time	Received By Fred Sara > Date/Time SF. = Sediment SO = Solid SO = Solid SI. = Sludge W = Water O = Oil	DS = Drum Solid DL = Drum Linui T = -Tissue WI = Wine L = Linuid V = Veretation X = Other				
Relinquished By	7.5	3	Caraco	9/17/2	Date	e/Time	Received By Date/Time P-18-04 115					
FINAL SAMI		al Metho	od (e.g., Return	to customer, per la				•				

pnnl SDG#	ዘዴኅ ዴላ	4		(CHAIN OF (CUSTODY/SAMPLE ANALYSIS R	EQUEST	B04-002-3
SAF No. B04-002			!		Contact/Requestor	Telephone N		Page 2 of 2 FAX
Sample No.	Lab ID	•	Date	Time	Dot Stewart No/Type Container	Sample Analysis	i056	Preservative
B1B3V2 -		W	9-15-04	1102	1x250-mL G/P	Technetium-99		HCI to pH <2
B1B3V2	a	W			1x100-mL G/P	Total Uranium		HNO3 to pH <2
B1B3V2		W			1x500-mL G/P	TDS - 160.1		Cool 4C
B1B3V2		W	1	1	1x500-mL aGs*	TOX - 9020		H2SO4 to pH <2 Cool 4C
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Relinquished By	Prin	<u> </u>	Sign					
DURAT	į.	\\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\		La 0	Pate/Time/900/ SEP 1 5 2004	Received By Print Sign	Date/Time	Matrix *
Relinquished By	Top.	4	× 5	1/10/-	Date/Time	Received By Fred Saras 9/16/64	3:(C no SI.	- Soil DS - Drum Solid - Sediment DI Drum Lioni - Solid T - Tissue - Shulge WI - Wine
Relinquished By	J. S)	Danas	9/17/	Date/Time	Received By 17194	Date/Time O	= Water
Relinquished By		() 5	2	9-18-0	Date/Time	Received by 9-18-04	Date/Time	
FINAL SAMPL DISPOSITION		l Metho	od (e.g., Return t	to customer, per	r lab procedure, used in pro	Disposed By	((')	Date/Time

l .	Strain of Custody,								SIS RE	QUEST	C.C	D.C.# B	804-002-4 of 2
Collector R. T.	SICKLE					Contact/Re					MSIN	FAX	
SAF No. B04-002				· · · · · · · · · · · · · · · · · · ·		Dot Stew Sampling (Sife	Pui	09-376-5056 chase Order/Char			
Project Title	rolect Title ERDF SEPT 2004							3	lce	Chest No. SML	276	Temp.	
Shinned To (Lab)		. 	enaged to the good			Method of			Bill	of Lading/Air Bill	B1	0000	72.21
Protocol								Days	on	site Property No.	7970	0 9058	5 2491
CERCLA POSSIBLE SAMP	LE HAZARI	OS/RE	MARKS					L INSTRUCTIONS	Hold Ti	ne	Total Activit	y Exemption:	Yes No
Sample No.	Lab ID	•	Date	Time	No/Tyr	e Container		Samp	ple Analysis				Preservative
B1B3V3 (F)	1	w	9-15-04	0914	1x500-n	L G/P	ICP Metals - 6010TR (Client Lis	st)			-		HNO3 to pH <2
B1B3V4		w	1 13 51	1	3x40-m	aGs*	VOA - 8260A (TCL)						HCl or H2SO4 to
B1B3V4		W			1x500-n	nL G/P	ICP Metals - 6010TR (Client Lis	st)			•		pH <2 Cool 4C HNO3 to pH <2
B1B3V4		w			1x500-r	nL P	IC Anions - 300.0						Cool 4C
B1B3V4		W			1x200 r	nL G/P	Alkalinity - 310.1						Cool 4C
B1B3V4		w			1x200-r		NO2/NO3 - 353.2		 				H2SO4 to pH <2 Cool 4C
B1B3V4		W			1x20-m	L P	Activity Scan						None
B1B3V4	i	W			2x1000	mL G/P	Gross Alpha				· 		HNO3 to pH <2
B1B3V4		W			2×1000	mL G/P	Gross Beta				· · · · · · · · · · · · · · · · · · ·		HNO3 to pH <2
B1B3V4		w			1x125-	mL G/P	Carbon-14	·			······································		None
B1B3V4	ı	W			4x1000	-mL G/P	lodine-129		· · · · · · · · · · · · · · · · · · ·				None
B1B3V4	1 A A A A A A A A A A A A A A A A A A A	W	1	No.	2x1000	-mL G/P	Radium -226		**************************************				HNO3 to pH <2
Relinguished By R.T. SIC	KLE) //				1 5 2004	Received By P	Print Sign		Date/Time	S = 5	Matri	
Relinquished By Relinquished By	J.S.	\$ \\ \sho		9/16/0	φ (C)	te/Time	Received By Received By	fred Sar	176 pg	Date/Time Date/Time	SF = 5 SO = 5 SL = 5 W = 1 O = 6	Sediment Solid Sludge Water Oil Air	DS = Drum Solid DI = Drum Liqui T = Tissue WI = Wine I. = Liquid V = Vesetation X = Other
Relinquished By	Fed	P		9-18-0	DE DE	100 S	Received By	and	9-18.	Date/Time	5		
FINAL SAMPI		Metho	d (e.g., Return	lo customer, p	er lab proce	dure, used in pr	cess)	△ Disposed By				Date/Time	

PNNL SDQ4 H2724						AIN OF	CUSTODY/	C.O.C.# B04-002-4					
	エジンと	4							- ·- ·- ·- ·- ·- ·- ·- ·- ·- ·- ·- ·- ·-			of 2	\dashv
SAF No. B04-002	 - '		·		Conta Do	ct/Requestor Stewart			Telephone No. 509-376-5056	MSIN	FAX		\dashv
Sample No. B1B3V4	Lab ID	· w	Date	Time	No/	Vne Container O-mL G/P	Technetium-99	Sample Analysis			Preservati		
B1B3V4		w	9-15-04	0914	الد ا	20			· · · · · · · · · · · · · · · · · · ·			HCI to pH <	:2
B1B3V4		w			2	FIL G/P 9-15-04	Total Uranium		. 141			HNO3 to ph	1<2
		<u> </u>				D-mL G/P	TDS - 160.1		, :			Cool 4C	
B1B3V4		W	4	+	1x500	D-mL aGs*	TOX - 9020		1	:		H2SO4 to p Cool 4C)H <2
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Relinquished By	Print	2			į	Date/Time /408		Print	Sign	Date/Time	Matrix	(*	
Relinquished By Relinquished By		500	9/	9/11/04	1	1 5 2004 Date/Time 0 1 7 5 Date/Time	Received By Received By	Fred S	Sarao 9/e/s p	Date/Time	Soil Sediment Solid Solidge Water Oil Air	DS = Drun DI. = Drun T = Tisss WI = Wine I. = Lian V = Vere X = Othe	m Lioui sie se sid retation
Relinquished By	To Oc	2		- 11-11	[Date/Time U	Received By	$\frac{3}{2}$	1/1/104	Date/Time			· · · · · · · · · · · · · · · · · · ·
FINAL SAMPLI DISPOSITION	Disposal	Method	I (e.g., Return to	7-18-04 customer, per	lab proc	/005 edure, used in proc	1 1 100		9-18-09 posed By	1005	Date/Time		·

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PNNL		.,			CHA	IN OF	CUSTODY/S	SAMPLE	ANALYSIS	REQUEST	C.0	.C. #	04-002-5
ODG#										EQUID!	-		
Collector R.T.	SICKLE		_			Contact/Re		ster Telephone No.				Page 1 FAX	of <u>2</u>
SAF No.	 					Dot Stev Sampling (ge Code		· · · · · ·
B04-002 roject Title	-						Macretal 2' V			Ice Chest No.	1 An acCTemp		
ERDF SEPT 200 hinned To (Lah)			en en en en en en en en en en en en en e	or community and a second	arwa e dare	Method of		- 176 9		Bill of Lading/Air Bill	C-99.056 Temp.		
TMA/RECRA	rain ny iro	the said to	er o a ir. ou	a and a substitution	va	Govt Tri				000	III No. 7920 0458 2480		
CERCLA POSSIBLE SAME	PLE HAZARI	DS/RE	EMARKS		1			rity: 45 Days SPECIAL INST	TRUCTIONS HA	Offsite Property No.	PTP 14	126	
		.	*	1						·	Total Activity	exemption;	Yes 🗹 No 🗀
Sample No.	Lab ID	•	Date	Time	1	e Container			Sample Anal	ysis			Preservative
B1B3V5 (F)	:	W	9-15-04	0800	1x500-n	L G/P	ICP Metals - 6010TR	(Client List)	•				HNO3 to pH <2
B1B3V6		W	1		3x40 ml	aGs*	VOA - 8260A (TCL)						HCl or H2SO4 to
B1B3V6		W			1x500-m	L G/P	P ICP Metals - 6010TR (Client List)						pH <2 Cool 4C HNO3 to pH <2
B1B3V6		W			1x500-m	LP	P IC Anions - 300.0						Cool 4C
B1B3V6		W			1х 200 -п	IL G/P	Alkalinity - 310.1						Cool 4C
B1B3V6		W			1x900-m		NO2/NO3 - 353.2						H2SO4 to pH <2
B1B3V6		w	 		1x20-ml		Activity Scan						Cool 4C None
B1B3V6	1 .	w	1	 	2x1000	mL G/P	Gross Alpha					· · · · · · · · · · · · · · · · · · ·	HNO3 to pH <2
B1B3V6	1	w	 		2×1000-	mL G/P	Gross Beta					•	
B1B3V6		W	 	1-1-	1x125-n	nL G/P	Carbon-14						HNO3 to pH <2
B1B3V6		w	 /-		4×1000-	mL G/P	lodine-129			•		<u>-</u> -	None
B1B3V6		w	 	 -	2x1000-	mL G/P	Radium -226			· · · · · · · · · · · · · · · · · · ·			None
		4		* *									HNO3 to pH <2
Relinquished By R.T. SI	CKLE	11	Sign	,.		c/Time /4/00	Received By Fel (X	Print	Sign	Date/Time		Matrix	
Relinquished By	FA	£_	۹	(16/04		e/Time	Received By	Fred S	9/16/04	Date/Time	SO = Sc	ediment	DS = Drum Solid DI. = Drum Lioni T = Tissue WI = Wine
Relinquished By			0	1	Dat	e/Time	Received By			Date/Time	- W = W	/ate r il	I. = Liquid V = Vegetation
Relinquished By	2	0 4	<u>danus</u>	2/17/3	Dat	3.33 fr	Received By	<u> </u>	9/17/08	Date/Time	^ - A	ir .	X = Other
FINAL SAMP	I F Dienore	<u>ع لا</u>	od (a.s. Pan	9-18-0 to customer, per	4	1005	10-Nec	nand	9-18-04	1005			
DISPOSITIO	N Disposa	i iaicii)	ou (e.g., Kenum	to customer, per	iao proced	ure, used in pro	ocess)	•	Disposed By			Date/Time	

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0 % # H2/24					CHAIN OF	CUSTODY/SAM	EQUEST	C.O.C.# B04-002-5		
SAF No. B04-002					Contact/Requestor Dot Stewart	•	Telephone P	io. MSI	Page 2 of	2 C C C C C C C C C C C C C C C C C C C
Sample No.	Lab ID	1	Date	Time	No Type Container		509-376-5	0056	· · · · · · · · · · · · · · · · · · ·	
B1B3V6		W	9-15-34		1x250-mL G/P	Technetium-99	le Analysis		Preservative HCtto	<u>©</u> pH <2
B1B3V6		W	15/2 4/	1	1×400-inL G/P	Total Uranium	<u> </u>			
B1B3V6	 	w	 	 	1x500-mL G/P	TDS - 160,1		·	HNO3	to pH <2
]							Cool 4	C
B1B3V6	i I	W	1	4	1x500-mL aGs*	TOX - 9020			H2SO4	4 to pH <2
							**************************************		Cool 4	С
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Relinquished By	Prin	رجا			Date/Time / 400	Received By P	rint Sign	Date/Time		
R.T. SI	CKLE				SEP 1 2 2004	Fel Ex		Dette Tune	Matrix *	
Relinquished By	Foo	d		9/16/5	Date/Time	Received By	28 Saras	Date/Time SE SO	= Sediment DI. = = Solid T =	Drum Solid Drum Liqui Tissue
Relinquished By	Pa	7	1	1/(6/8	Date/Time	Received By	9/16/0	Date/Time O	= Shidee WI = Water I, = Oil V = Air X =	Wine Limid Vegetation
Relinquished By	<u>\</u> ^	<u>. v</u>	parto	-9/17	Date/Time	Received By	9/1/1/24	<u> </u>	= Air X =	Other
	Fe	J.	<u> و ک</u>	9-18-04	1005	1- Numaw	9-18-04	Date/Time		
FINAL SAMPL DISPOSITION	E Disposal	Metho	od (e.g., Return t	to customer, per	lab procedure, used in pro	ocess)	Disposed By		Date/Time	
1										

PNNL &DG.#	H272	4			CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST C.O.C. # B04-0								
Collector					·		Contact/Re	quester Telephone No. MSIN FAX	* * - 3				
SAF No.	SICKLE						Dot Stew Sampling (art 509-376-5056	728888838				
B04-002 Project Title								Han ford 312					
ERDF SEPT 200								DTS-SAWS-HBY Ice Chest No. ERC-97-058 Temp.					
Shinned To (Lah) L TMA/RECRA	artise comani.		-A. a. esw	t Hermania	gasas la p	soft compton	Method of Govt Tru		2488				
Protocol CERCLA				4 Part. #1.1FE		Carrent of the category		Priority: 45 Days Offsite Property No.					
POSSIBLE SAMP	LE HAZARI	S/RE	MAF	RKS				SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption:	Yes V No				
				<u>.</u>									
Sample No.	Lab ID	*	,	Date	Tim	e N	Type Container	Sample Analysis	Preservative				
B1B3T5 (F)		W	9-	15-04	104	4 1x	500-mL G/P	ICP Metals - 6010TR (Cilent List)	HNO3 to pH <2				
B1B3T6		W	 	1	1		10-mL aGs*	VOA - 8260A (TCL)	HCl or H2SO4 to				
B1B3T6		w		1		1x	500-mL G/P	ICP Metals - 6010TR (Client List)	pH <2 Cool 4C HNO3 to pH <2				
B1B3T6		w	╌	 		1x	500-mL P	IC Anions - 300.0	Cool 4C				
B1B3T6		w	-			1x	200-mL G/P	Alkalinity - 310.1	Cool 4C				
B1B3T6		w			 	1x	9-15-07 900-mL G/P	NO2/NO3 - 353.2	H2SO4 to pH <2				
B1B3T6		w					100 R9-15-	Activity Scan	Cool 4C				
B1B3T6	} -	w			ļ	27	1000-mL G/P	Gross Alpha	None				
B1B3T6	ļ	W	+		_		1000-mL G/P		HNO3 to pH <2				
B1B3T6		1_	\sqcup					Gross Beta	HNO3 to pH <2				
		W					125-mL G/P	Carbon-14	None				
B1B3T6	<u> </u>	W				4>	1000-mL G/P	lodine-129	None				
B1B3T6		W	14	,	1 1	2)	1000-mL G/P	Radium -228	HNO3 to pH <2				
Relinquished By	ICKLE	Ŋ	2/	Sign		SF	Date/Time 14/05	Fel Ex					
Relinquished By							Date/Time	Received By Fre Serves Date/Time SF = Sediment SO = Solid	DS = Drum Solid DL = Drum Liani T = Tissue				
Relinquished By	≥ €∞			<u>9//</u> 1	POY	0 /4		Janus 9/16/0 φ 3.45 Sl. = Shidse W = Water	T = Tirme WI = Wine 1. = Limid				
veinidmayed by	1	Ò	٥	,	•	اماه	Date/Time	Received By Date/Time O - Oil A - Air	V = Vegetation X = Other				
Relinquished By	- Xu	<u>~</u>	4	ang	`	माम	Date/Time	Received By Date/Time					
	F.	() (0		9-	8-04	1005						
FINAL SAMPL	E Disposal	Metho	od (c.g	., Return t		***	procedure, used in pro	77700000					

FINAL SAMPLE DISPOSITION

PNNL						CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST								C.O.C.# B04-002-		
SDG A	H 272	4			Cont	act/F	Requestor			Telephon	e No.	MSIN	Page 2	of <u>2</u>	-	
B04-002 Sample No. B1B3T6	Lab ID	•	Date	Time	No	/Type	ewart Container	· ·	Sample Analysi	509-37	6-5056		Preservativ			
B1B3T6 .		W	7-1504	1044	1x2	50-ml	L G/P	Technetium-99					PIESELVAUN	HCI to pH <		
B1B3T6		W	1		1x4	60-ml	L G/P	Total Uranium						HNO3 to pH	1<2	
B1B3T6		w			1x5	d0-mi	L G/P	TDS - 160.1						Cool 4C		
B1B3T6		w		L	1x5	00-ml	L aGs°	TOX - 9020						H2SO4 to pi)H <2	
																
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Relinquished By R.T. S	Print ICKLE	7	Sign			1 !	Time /400	Received By Fell & ×	Print	Sign	Date/Time		Matrix			
Relinquished By Relinquished By	For		ex vo	9,	1/04 16/0	Date	-/Time 3にょっか~	Received By Received By	red sav	9/16/04	Date/Time 3: 45 Date/Time	SF. SO. SI. W	Soil Seliment Solid Sludge Water Oil	D1. = Dru T = Tiss W1 = Win 1. = Ligu	ne uid retation	
Relinquished By	fall	Ep		9-18			LOOS	Received By	-l	9-18-04	Date/Time					
FINAL SAMPL DISPOSITION		Method	(e.g., Return t	o customer, p	er lab pı	rocedu	ire, used in pro	cess)		Disposed By			Date/Time			

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pnnl SDG 4	H2724						Page 1	B04-002-8	
Collector	DURATEK F. M. HALL		•			Contact/Rec	Telephone No. MSIN FAX		
SAF No.		Sa					rigin HANFORD S. TE Purchase Order/Charge Code		
B04-002 Project Title						0.7	5- SHUS H83 Ice Chest No. SML 510 Temp.		
ERDF SEPT 2004 Shinned To (Lab)						Method of		8 2416	
TMA/RECRA Protocol CERCLA	and the second s						Priority: 45 Days Offsite Property No.	0 0 141	
POSSIBLE SAMPL	E HAZARD	S/REI	MARKS				SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: \	res V No L	
Sample No.	Lab ID	•	Date	Time	No/	Type Container	Sample Analysis	Preservative	
B1B440		w	9-15-04	0850	3x40	-mL aGs*		HCI or H2SO4 to pH <2 Cool 4C	
B1B440		w	1,	1	1x20	-mL P	Activity Scan	None	
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<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>					
F. M. HA	FaD 2	A	9/	6/00	S	P 1 5 2004 Date/Time	Received By Print Sign Date/Time Matrix FED F Received By Fred Sara Date/Time SF = Sediment SO = Solid SI. = Shudge SI. = Shudge SI. = Water	DS = Drum Solid D1. = Drum Limi T = Tissue WI = Wine L = Limid	
Relinquished By	<u> </u>	(C	men	9(110	ب ب	Date/Time 3: い	Received By Date/Time O = Oil A = Air	V = Vegetation X = Other	
Relinquished By	Fil	فع		-18-04	•	Date/Time	1. Seeman 9-18-04 1115		
FINAL SAMPL		Metho			er lab p	rocedure, used in pr	Disposed By Date/Time		

PNNL					CHA	IN OF	CUSTODY/	SAMPLE A	ANALYSIS F	REQUEST	C.O.C. #	04-002-9
SDG 4	H272	4					0051021.			EQUEST .	Page 1	of 1
Collector R.	SICKL	Ę		•	****	Contact/Re	quester			Telephone No.	MSIN FAX	
SAF No. B04-002					_	Sampling (Origin Han	fird si	H	Purchase Order/Charge	Code 720	
Project Title	,		·			DT	3-5AW4-1			Ice Chest No. ERC-	79.05 F Temp.	
ERDF SEPT 20	L.,		F	eser	nene a ra L	Method of	,	<u>: </u>		Bill of Lading/Air Bill N	10. 7920 0958	2480
_ITMA/RECRA		* 1	<u>.</u>				Pri	ority: 45 Days		Offsite Property No.		240
CERCLA POSSIBLE SAM	PLE HAZARI	S/RE	MARKS			<u> </u>		SPECIAL INSTR	UCTIONS Hole	d Time	Total Activity Exemption:	Yes V No
•			! ! !									
Sample No.	Lab ID	•	Date	Time	No/I	ype Container		l	Sample Analy	/sis		Preservative
B1B441		W	9.15-04	0800	3x40-	mL aGs*	VOA - 8260A (TCL))				HCI or H2SO4 to pH <2 Cool 4C
B1B441		w	4	L	1x20	mL P	Activity Scan					None None
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Relinquished By	Prir	11				Date/Time	Received By	Print	Sign	Date/Time	Matri	K *
Relinquished By Relinquished By	S E	9	9/10 Davan	<i>-/+4</i> 91	SE /a:	Date/Time	Received By Received By		Sara= \(\frac{9}{10} \)	Date/Time Date/Time	S = Soil SE = Sediment SO = Solid SI = Sludge W = Water O = Oil A = Air	DS - Drum Solid Dl Drum Liqui T - Tissue WI - Wine L - Liquid V - Vegetation X - Other
Relinquished By	F0 () E			,,	Date/Time	Received By	0	9-18-04	Date/Time		•
FINAL SAMI		d Meth	od (e.g., Return	to customer, p	er lab pro	cedure, used in p	rocess)	escaro	Disposed By		Date/Time	1

PNNL SOG-4	H272	24			СНА	IN OF (CUSTODY/S	SAMPLE A	NALYSIS RI	EQUEST		4-002-10	
Collector R.T. SI	CKIE					Contact/Re	quester		T	elephone No.	Page 1 MSIN FAX	of 1	
SAF No. B04-002	UNLE_				_	Sampling O	rigin Han G	ed site	P	urchase Order/Charge	: Code		
Project Title ERDF SEPT 2004						Dr	rigin Hanfo	H84'	I	Ice Chest No. 5/11/226 Temp. Bill of Lading/Air Bill No.			
Shinned To (Lah)					9 V.	Method of	f Shipment Bill of Lading/Air			Bill of Lading/Air Bill N	7920 9058	- 2/	
Protocol CERCLA		60 - 21 PV	et distrib	and an original			Priority: 45 Days Offsite Property No.			7920 9058	2441		
POSSIBLE SAMPL	E HAZARD	S/RE	MARKS				SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption:					Ves V No	
** **		1 :	·				·				Total Flority Exchiption.	16 6 10	
Sample No.	Lab ID	•	Date	Time	No/Ty	pe Container		7	Sample Analysis	s		Preservative	
B1B442		W	4 - 15-64	0800	3х40-п	nL aGs*	VOA - 8260A (TCL)				i	HCI or H2SO4 to	
B1B442		W	4	1	1x20-n	nL P	Activity Scan		7.1.			pH <2 Cool 4C None	
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					-		1						
Relingisted BSIC	KLE Print		Sign .			are/Time <i>p4/0</i> 0	Received By Feel Ex	Print	Sign	Date/Time	Matri	·	
Relinquished By			9/	16/04	D	ate/Time	Received By		Saras	Date/Time	S = Soil SE = Sediment SO = Solid SL = Sludge	DS = Drum Solid DI. = Drum Limi T = - Tissue WI = Wine	
Relinquished By	1	9		9/12/20	D	Pate/Time	Received By	مع کی	9/1/20	Date/Time	W = Water O = Oil A = Air	I. = Liquid V = Vecetation X = Other	
Relinquished By		ر ب <u>ہ</u> ص	TACA	11139	I.	ate/Time	Received By		4117	Date/Time			
	rell	<u>ξο</u>		9-18-09		1005	1- Hay	<u></u>	3-8-€	4 1005			
FINAL SAMPLI DISPOSITION		Method	i (e.g., Return to	o customer, per	tab proc	edure, used in pro	cess)	٥ -	Disposed By		Date/Time		

CHAII	N OF CUSTODY/SA	MPLE ANALYSIS	REQUEST
			•

C.O.C. #	
	B04-002-1

llector R. I.	SICKLE		· · · · · · · · · · · · · · · · · · ·		Contact/R		1 of 2			
F No.		•			Dot Ste	509-376-5056	509-376-5056			
DO4 003	·				Sampling	Origin Hanford 5, 4 Purchase Order/Charge Code				
oject Title ERDF SEPT 2004	La				7	TC-SAWJ- H84 Ice Chest No. 5m L 558 Temp.	Ice Chest No. 52 4 558 Temp.			
inned To (Lab)	n (Lab)					Shipment Bill of Lading/Air Bill No.	1120104			
otocol	rositan in La guirei il		وفرونها كالمارات المتدادة فيتا	Service of the service of the service of	Govt Tr	low to me to the contract of t	36 2 81 05			
CERCLA DSSIBLE SAMPI	LE HAZARI	S/RE	MARKS			Trong. 40 Days				
••	1					SPECIAL INSTRUCTIONS Hold Time Total Activity Exempt	ion: Yes 😢 No 🗀			
				-						
					<u> </u>					
Sample No.	Lab ID	٠	Date	Time	No/Type Container	Sample Analysis	Preservative			
1B3T7 (F)	;	w	9-110-04	6590	1x500-mL G/P	ICP Metals - 6010TR (Client List)	HNO3 to pH <2			
1B3T8		W	1		3x40-mL aGs*	VOA - 8260A (TCL)	HCI or H2SO4 to			
1B3T8		W	11	1-1-	1x500-mL G/P	ICP Metals - 6010TR (Client List)	pH <2 Cool 4C HNO3 to pH <2			
1B3T8		w			1x500-mL P	IC Anions - 300.0	Cool 4C			
IB3T8		w		1-1-	1x260 mL G/P	Alkalinity - 310.1	Cool 4C			
1B3T8		W			1x300-mL G/P	NO2/NO3 - 353,2	H2SO4 to pH <2			
1B3T8		w		 - - 	1x20-mL P	Activity Scan	Cool 4C			
1B3T8	ļ			4	<u> </u>		None			
		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2			
1B3T8		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2			
1B3T8		W			1x125-mL G/P	Carbon-14	None			
1B3T8		W		1 1	4x1000-mL G/P	lodine-129	None			
1B3T8		W			2x1000-mL G/P	Radium -226	HNO3 to pH <2			
Calinquished Day	D.	\equiv								
R.T. SIC	KLE				Date/Time / -/ SEP 1 6 2004	Descrived By Print Sign Date/Time	Matrix *			
elinquished By		H			Date/Time	Received By Fred Sona Date/Time SE Soliment	DS = Drum Sol DL = Drum Lio			
T	D/K	a'	c	11110	.	1 10 10 15 3C St. = Shudge	T = Tissue WI = Wine			
elinquished By	7			11,11	Date/Time	Received By Date/Time O = Oil	I. – Limid V – Vegetatio			
	/	lus	Jamos	9/11/0	φ 3:22	For 9117/04 1 - Air	X = Other			
telinquished By	4	1e	_	0 -	Date/Time	Received By Date/Time				
	E Disposa			9-18-	er lab procedure, used in p	00cess) Disposed By Date	•			

PNNL

SDG# HR724

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C.# B04-002-

D04-002-1

Page 2 of 2 Sococococo SAF No. Telephone No. MSIN FAX Contact/Requestor 509-376-5056 B04-002 Dot Stewart Lab ID No/Type Container Sample Analysis Preservative Sample No. W 1x250-mL G/P HCl to pH <2 Technetium-99 **B1B3T8** 1x180-mL G/P HNO3 to pH <2 B1B3T8 W **Total Uranium** Cool 4C **B1B3T8** W 1x500-mL G/P TDS - 160.1 H2SO4 to pH <2 **B1B3T8** W 1x500-mL aGs* TOX - 9020 Cool 4C Relinquished By Pri Date/Time /400 Date/Time Matrix * SEP 1 6 2004 - Drum Solid Date/Time = Sediment - Drum Liaui Relinquished By Date/Time Received By Solid Tissue = Sludge - Wine - Water - Liouid Relinquished By Received By - Oil - Vegetation - Other Relinquished By 005 1005 Date/Time Disposal Method (e.g., Return to customer, per lab procedure, used in process) FINAL SAMPLE DISPOSITION

	H 142		μ .		CH			SAMPLE ANALYSI	S REQUEST		B04-002-7	
Collector R.T.	.SICKL					Contact/I	Requester Do +	Sto 126 cal	Telephone No.	MSIN FA		
SAF No. B04-002	•					Sampling	Origin Hank	od site	Purchase Order/Chara	arge Code		
Project Title _ERDF SEPT 200					-				Ice Chest No.	Temp.		
Shinned To (Lah)	100		elen Miller et elen et en elen elen elen elen elen	erine material message.		Method o						
Protocol	को है। को दार्थिक क्षेत्र में का १८०५ ।	en i en	CORNER DE PROBERTO LA L	e Print a magnitude of the control o					Office Page 25	Bill No. 7927 3263 8185		
POSSIBLE SAMP	LE HAZARI	DS/RE	MARKS				Pric	ority: 45 Days	Onsite Property 140.			
								SPECIAL INSTRUCTIONS	Hold Time	Total Activity Exemption	n: Yes 🗹 No 🗀	
Sample No.	Lab ID	•	Date	Time	No/T	ype Container	- · · · ·	. C1. A		·		
B1B439		W	9-16-04	0730		mL aGs*	VOA - 8260A (TCL)	Sample A	Maiysis		Preservative	
B1B439		w	1	7	1x20-	mL P	Activity Scan	· · · · · · · · · · · · · · · · · · ·			HCI or H2SO4 to pH <2 Cool 4C	
		\vdash	-10	7							None	
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Relinquished By	D:		- a:									
Relinquished By	SICKLE	برعت	Sign			ate/Time / 400 1 6 2004	Received By	Print Sign	Date/Time	Mati	rix *	
Relinquished By Relinquished By Relinquished By	D 5,), O	9/	117/04	φ :	rate/Time .`; \(\rightarrow\) rate/Time rate/Time	Received By Received By Received By	Fred Saras 9/17/24 8/4 9/17/24	Date/Time Date/Time Date/Time	S = Soil SE = Sediment SO = Solid SI = Shudge W = Water O = Oil A = Air	DS = Drum Solid DI = Drum Limi T = Tissue WI = Wine I. = Limid V = Vegetation X = Other	
FINAL SAMPL	E Disposal	Method	(e.g., Return to	Customer ne	778-c	dure, used in pr	1-Her	9-18-04	1005			
DISPOSITION				- Jestoniet, pc	. ao pido	-wife, used in pr	occss)	O Disposed By		Date/Tim	ie.	

Lionville Laboratory Incorporated SAMPLE RECEIPT CHECKLIST (SRC)

CLIE	NT: THE	HANFORD	The second visit was an analysis of the second	Date: 9-18	8-04	
Durcha	se Order / Proje					
	Batch #:	04096677	. · ·	Sample Custo	<u></u>	rexail
		NOTE: E	XPLAIN ALL	DISCREPANCII	ES	202-1110-121
1.	Samples Hand	Delivered or Shipped	Carrier	fed Es	Airbil#	L 2102
2.	Custody seals container intac	on coolers or shipping	Í Yes	□ No	□ No Seals	Comments
3.	Outside of coo	olers or shipping containers are age?	D/Yes	□ No		
4.	other client spe	aperwork received (coc and ecific information) sealed in I easily accessible?	+D Yes	. □ No		·
5.	Samples receive	ved cooled or ambient?	Temp	2:4 °C	Cooler# 5	ML 510 CC 99058
6.	Custody seals signed and dat	on sample containers intact,ed?	□ Yes	□ No	□ No Seals	<i>:</i>
7.	coc signed and	dated?	Q Yes	□ No		
8.	Sample contain	ners are intact?	D'Yes	□ No		
.9•	All samples on received on co	coc received? All samples	QX€	□ No		
10.	All sample lab	el information matches coc?	DYS	□ No		
11.	Samples prope	rly preserved?	ZYes	□ No		
12.	Samples receive Short holds take	ed within hold times? en to wet lab?	□ Yes	DNo Ic	ANONS	
13.	VOA, TOC	Tree of headspace?	□ Yes	DM	ONIA He	Spu
14.	QC stickers pla	ced on bottles designated by	□ Yes	□ No	DN/A	•.
15.	Policy? (Identi	s LvLI Sample Acceptance ify all bottles not within verse side for policy)	□Yes	DNo.		·
16.	Project Manage	er contacted concerning name/date (or samples	ΛYes	□ No	□ No Discrepancies	



DATE RECEIVED: 09/18/04

LVL LOT # :0409L677

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B1B3T9						
ARSENIC, SOLUBLE	001	W	04L0629	09/15/04	10/13/04	10/13/04
ARSENIC, SOLUBLE	001 REP	W	04L0629	09/15/04	10/13/04	10/13/04
BARIUM, SOLUBLE	001	W	04L0629	09/15/04	10/13/04	10/13/04
BARIUM, SOLUBLE	001 REP	W	04L0629	09/15/04	10/13/04	10/13/04
CHROMIUM, SOLUBLE	001	W	04L0629	09/15/04	10/13/04	10/13/04
CHROMIUM, SOLUBLE	001 REP	W	04L0629	09/15/04	10/13/04	10/13/04
LEAD, SOLUBLE	001	W	04L0629	09/15/04	10/13/04	10/13/04
LEAD, SOLUBLE	001 REP	W	04L0629	09/15/04	10/13/04	10/13/04
SELENIUM, SOLUBLE	001	W	04L0629	09/15/04	10/13/04	10/13/04
SELENIUM, SOLUBLE	001 REP	W	04L0629	09/15/04	10/13/04	10/13/04
TIN, SOLUBLE	001	W	04L0629	09/15/04	10/13/04	10/13/04
TIN, SOLUBLE	001 REP	W	04L0629	09/15/04	10/13/04	10/13/04
VANADIUM, SOLUBLE	001	W	04L0629	09/15/04	10/13/04	10/13/04
VANADIUM, SOLUBLE	001 REP	W	04L0629	09/15/04	10/13/04	10/13/04
ZINC, SOLUBLE	001	W	04L0629	09/15/04	10/13/04	10/13/04
ZINC, SOLUBLE	001 REP	W	04L0629	09/15/04	10/13/04	10/13/04
B1B3V0						
ARSENIC, TOTAL	002	W	04L0629	09/15/04	10/13/04	10/13/04
ARSENIC, TOTAL	002 MS	W	04L0629	09/15/04	10/13/04	10/13/04
BARIUM, TOTAL	002	W	04L0629	09/15/04	10/13/04	10/13/04
BARIUM, TOTAL	002 MS	W	04L0629	09/15/04	10/13/04	10/13/04
CHROMIUM, TOTAL	002	W	04L0629	09/15/04	10/13/04	10/13/04
CHROMIUM, TOTAL	002 MS	W	04L0629	09/15/04	10/13/04	10/13/04
LEAD, TOTAL	002	W	04L0629	09/15/04	10/13/04	10/13/04
LEAD, TOTAL	002 MS	W	04L0629	09/15/04	10/13/04	10/13/04
SELENIUM, TOTAL	002	W	04L0629	09/15/04	10/13/04	10/13/04
SELENIUM, TOTAL	002 MS	W	04L0629	09/15/04	10/13/04	10/13/04
TIN, TOTAL	002	W	04L0629	09/15/04	10/13/04	10/13/04
TIN, TOTAL	002 MS	W	04L0629	09/15/04	10/13/04	10/13/04
VANADIUM, TOTAL	002	W	04L0629	09/15/04	10/13/04	10/13/04
VANADIUM, TOTAL	002 MS	W	04L0629	09/15/04	10/13/04	10/13/04
ZINC, TOTAL	002	W	04L0629	09/15/04	10/13/04	10/13/04
ZINC, TOTAL	002 MS	W	04L0629	09/15/04	10/13/04	10/13/04

DATE RECEIVED: 09/18/04 LVL LOT # :0409L677

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
						
B1B3V1						
ARSENIC, SOLUBLE	003	W	04L0629	09/15/04	10/13/04	10/13/04
BARIUM, SOLUBLE	003	W	04L0629	09/15/04	10/13/04	10/13/04
CHROMIUM, SOLUBLE	003	W	04L0629	09/15/04	10/13/04	10/13/04
LEAD, SOLUBLE	003	W	04L0629	09/15/04	10/13/04	10/13/04
SELENIUM, SOLUBLE	003	W	04L0629	09/15/04	10/13/04	10/13/04
TIN, SOLUBLE	003	W	04L0629	09/15/04	10/13/04	10/13/04
VANADIUM, SOLUBLE	003	W	04L0629	09/15/04	10/13/04	10/13/04
ZINC, SOLUBLE	003	W	04L0629	09/15/04	10/13/04	10/13/04
B1B3V2						
ARSENIC, TOTAL	004	W	04L0629	09/15/04	10/13/04	10/13/04
BARIUM, TOTAL	004	W	04L0629	09/15/04	10/13/04	10/13/04
CHROMIUM, TOTAL	004	W	04L0629	09/15/04	10/13/04	10/13/04
LEAD, TOTAL	004	W	04L0629	09/15/04	10/13/04	10/13/04
SELENIUM, TOTAL	004	W	04L0629	09/15/04	10/13/04	10/13/04
TIN, TOTAL	004	W	04L0629	09/15/04	10/13/04	10/13/04
VANADIUM, TOTAL	004	W	04L0629	09/15/04	10/13/04	10/13/04
ZINC, TOTAL	004	M	04L0629	09/15/04	10/13/04	10/13/04
B1B3V3						
ARSENIC, SOLUBLE	005	W	04L0629	09/15/04	10/13/04	10/13/04
BARIUM, SOLUBLE	005	W	04L0629	09/15/04	10/13/04	10/13/04
CHROMIUM, SOLUBLE	005	W	04L0629	09/15/04	10/13/04	10/13/04
LEAD, SOLUBLE	005	W	04L0629	09/15/04	10/13/04	10/13/04
SELENIUM, SOLUBLE	005	W	04L0629	09/15/04	10/13/04	10/13/04
TIN, SOLUBLE	005	W	04L0629	09/15/04	10/13/04	10/13/04
VANADIUM, SOLUBLE	005	W	04L0629	09/15/04	10/13/04	10/13/04
ZINC, SOLUBLE	005	W	04L0629	09/15/04	10/13/04	10/13/04
B1B3V4						
ARSENIC, TOTAL	006	W	04L0629	09/15/04	10/13/04	10/13/04
BARIUM, TOTAL	006	W	04L0629	09/15/04	10/13/04	10/13/04

DATE RECEIVED: 09/18/04 LVL LOT # :0409L677

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM, TOTAL	006		04L0629	09/15/04	10/13/04	10/13/04
LEAD, TOTAL	006	W	04L0629	09/15/04	10/13/04	10/13/04
SELENIUM, TOTAL	006	W	04L0629	09/15/04	10/13/04	10/13/04
TIN, TOTAL	006	W	04L0629	09/15/04	10/13/04	10/13/04
VANADIUM, TOTAL	006	W	04L0629	09/15/04	10/13/04	10/13/04
ZINC, TOTAL	006	W	04L0629	09/15/04	10/13/04	10/13/04
B1B3V5						
ARSENIC, SOLUBLE	007	W	04L0629	09/15/04	10/13/04	10/13/04
BARIUM, SOLUBLE	007	W	04L0629	09/15/04	10/13/04	10/13/04
CHROMIUM, SOLUBLE	007	W	04L0629	09/15/04	10/13/04	10/13/04
LEAD, SOLUBLE	007	W	04L0629	09/15/04	10/13/04	10/13/04
SELENIUM, SOLUBLE	007	W	04L0629	09/15/04	10/13/04	10/13/04
TIN, SOLUBLE	007	W	04L0629	09/15/04	10/13/04	10/13/04
VANADIUM, SOLUBLE	007	W	04L0629	09/15/04	10/13/04	10/13/04
ZINC, SOLUBLE	007	W	04L0629	09/15/04	10/13/04	10/13/04
B1B3V6						
ARSENIC, TOTAL	800	W	04L0629	09/15/04	10/13/04	10/13/04
BARIUM, TOTAL	008	W	04L0629	09/15/04	10/13/04	10/13/04
CHROMIUM, TOTAL	008	W	04L0629	09/15/04	10/13/04	10/13/04
LEAD, TOTAL	008	W	04L0629	09/15/04	10/13/04	10/13/04
SELENIUM, TOTAL	008	W	04L0629	09/15/04	10/13/04	10/13/04
TIN, TOTAL	008	W	04L0629	09/15/04	10/13/04	10/13/04
VANADIUM, TOTAL	008	W	04L0629	09/15/04	10/13/04	10/13/04
ZINC, TOTAL	800	M	04L0629	09/15/04	10/13/04	10/13/04
B1B3T5						
ARSENIC, SOLUBLE	009	W	04L0629	09/15/04	10/13/04	10/13/04
BARIUM, SOLUBLE	009	W	04L0629	09/15/04	10/13/04	10/13/04
CHROMIUM, SOLUBLE	009	W	04L0629	09/15/04	10/13/04	10/13/04
LEAD, SOLUBLE	009	W	04L0629	09/15/04	10/13/04	10/13/04
SELENIUM, SOLUBLE	009	W	04L0629	09/15/04	10/13/04	10/13/04
TIN, SOLUBLE	009	W	04L0629	09/15/04	10/13/04	10/13/04
VANADIUM, SOLUBLE	009	W	04L0629	09/15/04	10/13/04	10/13/04

DATE RECEIVED: 09/18/04 LVL LOT # :0409L677

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSI:
ZINC, SOLUBLE	009	w	04L0629	09/15/04	10/13/04	10/13/0
B1B3T6						
ARSENIC, TOTAL	010	W	04L0629	09/15/04	10/13/04	10/13/0
BARIUM, TOTAL	010	W	04L0629	09/15/04	10/13/04	10/13/0
CHROMIUM, TOTAL	010	W	04L0629	09/15/04	10/13/04	10/13/0
LEAD, TOTAL	010	W	04L0629	09/15/04	10/13/04	10/13/0
SELENIUM, TOTAL	010	W	04L0629	09/15/04	10/13/04	10/13/0
TIN, TOTAL	010	W	04L0629	09/15/04	10/13/04	10/13/0
VANADIUM, TOTAL	010	W	04L0629	09/15/04	10/13/04	10/13/0
ZINC, TOTAL	010	W	04L0629	09/15/04	10/13/04	10/13/0
B1B3T7						
ARSENIC, SOLUBLE	014	W	04L0629	09/16/04	10/13/04	10/13/0
BARIUM, SOLUBLE	014	W	04L0629	09/16/04	10/13/04	10/13/0
CHROMIUM, SOLUBLE	014	W	04L0629	09/16/04	10/13/04	10/13/0
LEAD, SOLUBLE	014	W	04L0629	09/16/04	10/13/04	10/13/0
SELENIUM, SOLUBLE	014	W	04L0629	09/16/04	10/13/04	10/13/0
TIN, SOLUBLE	014	W	04L0629	09/16/04	10/13/04	10/13/0
VANADIUM, SOLUBLE	014	W	04L0629	09/16/04	10/13/04	10/13/0
ZINC, SOLUBLE	014	W	04L0629	09/16/04	10/13/04	10/13/0
B1B3T8						
ARSENIC, TOTAL	015	W	04L0629	09/16/04	10/13/04	10/13/0
BARIUM, TOTAL	015	W	04L0629	09/16/04	10/13/04	10/13/0
CHROMIUM, TOTAL	015	W	04L0629	09/16/04	10/13/04	10/13/0
LEAD, TOTAL	015	W	04L0629	09/16/04	10/13/04	10/13/0
SELENIUM, TOTAL	015	W	0 4 L0629	09/16/04	10/13/04	10/13/0
TIN, TOTAL	015	W	04L0629	09/16/04	10/13/04	10/13/0
VANADIUM, TOTAL	015	W	04L0629	09/16/04	10/13/04	10/13/0
ZINC, TOTAL	015	W	04L0629	09/16/04	10/13/04	10/13/0
AB QC:						
ARSENIC LABORATORY	LC1 BS	W	04L0629	N/A	10/13/04	10/13/0

DATE RECEIVED: 09/18/04

LVL LOT # :0409L677

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
· · · · · · · · · · · · · · · · · · ·				-	-	
ARSENIC, TOTAL	MB1	W	04L0629	N/A	10/13/04	10/13/04
BARIUM LABORATORY	LC1 BS	W	04L0629	N/A	10/13/04	10/13/04
BARIUM, TOTAL	MB1	W	04L0629	N/A	10/13/04	10/13/04
CHROMIUM LABORATORY	LC1 BS	W	04L0629	N/A	10/13/04	10/13/04
CHROMIUM, TOTAL	MB1	W	04L0629	N/A	10/13/04	10/13/04
LEAD LABORATORY	LC1 BS	W	04L0629	N/A	10/13/04	10/13/04
LEAD, TOTAL	MB1	W	04L0629	N/A	10/13/04	10/13/04
SELENIUM LABORATORY	LC1 BS	W	04L0629	N/A	10/13/04	10/13/04
SELENIUM, TOTAL	MB1	W	04L0629	N/A	10/13/04	10/13/04
TIN LABORATORY	LC1 BS	W	04L0629	N/A	10/13/04	10/13/04
TIN, TOTAL	MB1	W	04L0629	N/A	10/13/04	10/13/04
VANADIUM LABORATORY	LC1 BS	W	04L0629	N/A	10/13/04	10/13/04
VANADIUM, TOTAL	MB1	W	04L0629	N/A	10/13/04	10/13/04
ZINC LABORATORY	LC1 BS	W	04L0629	N/A	10/13/04	10/13/04
ZINC, TOTAL	MB1	W	04L0629	N/A	10/13/04	10/13/04



Analytical Report

Client: TNU-HANFORD B03-018

W.O.#: 11343-606-001-9999-00

LVL#: 0409L677

Date Received: 09-18-04

SDG/SAF#: H2724/B03-018

METALS CASE NARRATIVE

1. This narrative covers the analyses of 12 water samples.

- 2. The samples were prepared and analyzed in accordance with methods checked on the attached glossary.
- 3 All analyses were performed within the required holding times.
- 4. Please refer to the Sample Receipt Check List for sample discrepancies in LvLI's sample acceptance policy.
- 5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits.
- 6. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the PQL).
- 7. The preparation/method blank for 1 analyte was outside method criteria. {less than the Practical Quantitation Limit (3X the IDL), or samples greater than 20X MB value). Refer to the Inorganics Method Blank Data Summary.
 - a). The MB result for Zinc was greater than the Practical Quantitation Limit (PQL) {3 x the (IDL) Instrument Detection Level and samples B1B3V3, B1B3V4, B1B3V5, B1B3V6, B1B3T5, B1B3T6, B1B3T7, and B1B3T8 each read less than 20 times the MB concentration. However, no corrective action criteria for MBs were provided in SW846 method 6010B. The sample results were reported herein "uncorrected" for the levels found in the MB.
- 8. All ICP Interference Check Standards were within control limits.
- 9. All laboratory control samples (LCS) were within the 80-120% control limits. Refer to the Inorganics Laboratory Control Standards Report.
- 10. All matrix spike (MS) recoveries were within the 75-125% control limits. Refer to the

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 35 pages.

Inorganics Accuracy Report.

- 11. The duplicate analyses for 2 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.
- 12. For the purposes of this report, the data has been reported to the Instrument Detection Limit (IDL). Values between the IDL and the Practical Quantitation Limit (PQL) are acquired in a region of less-certain quantification.
- 13. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

_Iain/Daniel

Laboratory Manager

Lionville Laboratory Incorporated

jjw/m09-677

10/19/04 Date



METALS METHOD GLOSSARY The following methods are used as reference for the digestion and analysis of samples contained within this Lot#: 0409L677 Leaching Procedure: __1310 __1311 __1312 __Other:_ CLP Metals __ Digestion and __ Analysis Methods: __ILM03.0 __ILM04.0 Metals Digestion Methods: <u>\(\sigma \)</u>3005A __3010A __3015 __3020A __3050B __3051 __200.7 __SS17 __Other:_ Metals Analysis Methods **EPA USATHAMA OSWR** STD MTD **EPA** SW846 99 200.7 6010B Aluminum 99 200.7 __204.2 6010B 7041-5-Antimony 99 __3113B 206.2 7060A 5 200.7 % 6010B Arsenic 99 200.7 **∞**6010B **Barium** 99 200.7 6010B Beryllium 1 99 1620 200 7 1 P S S S S S S

Bismuth	6010B ·200.7 ·	162099
Boron	6010B200.7	99
Cadmium	6010B 7131A 5200.7213.2	99
Calcium	$\frac{-}{6010B}$ $\frac{-}{200.7}$	99
Chromium	∑6010B 7191 5200.7218.2	SS17
Cobalt		99
Copper	6010B7211 ⁵ 200.7220.2	99
Iron		99
Lead	<u>∞</u> 6010B7421 ⁵ 200.7239.231	
Lithium	-6010B -7430 ·200.7	162099
Magnesium		99
Manganese	6010B200.7	99
Mercury	7470A ³ 7471A ³ 245.1 ² 245.5 ²	99
Molybdenum	6010B200.7	99
Nickel	6010B200.7	99
Potassium	6010B7610 '200.7258.1 '	99
Rare Earths	6010B ¹200.7 ¹	162099
Selenium	№ 6010B7740 ⁵ 200.7270.231	13B99
Silicon	6010B ¹ 200.7	162099
Silica	6010B200.7	1620
Silver	6010B7761 ⁵ 200.7272.2	99
Sodium	6010B7770 '200.7273.1 '	99
Strontium	6010B200.7	99
Thallium	6010B7841 ^s 200.7279.2200.9	99
Tin	₹ 6010B200.7	99
Titanium	6010B200.7	99
Uranium		162099
Vanadium	★6010B 200.7	99
Zinc .	1 1 1 1 1 1 1 1 1 1	99
Zirconium	6010B ¹200.7 ¹	162099
Other:	Method:	₽₩1-033/M-03/01

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

- U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.
- * = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

MB = Method or Preparation Blank.

MS = Matrix Spike.

MSD = Matrix Spike Duplicate.

REP = Sample Replicate

LCS = Laboratory Control Sample.

NC = Not calculated.

ANALYTICAL METAL METHODS

- 1. Not included in the method element list.
- 2. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, approximately 0.3 grams of sample is taken to a final volume of 50 mL (including all reagents).
 - 3. Flame AA.
 - 4. Graphite Furnace AA.

L-W1-033/N-04/98

INORGANICS DATA SUMMARY REPORT 10/18/04

CLIENT: TNUHANFORD B03-018 H2724

LVL LOT #: 0409L677

CLIENT: TNUHANFORD B03-018 H2724
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B1B3T9	Arsenic, Soluble	3.7	UG/L	3.6	1.0
		Barium, Soluble	56.3	UG/L	0.20	1.0
		Chromium, Soluble	5.5	UG/L	0.60	1.0
		Lead, Soluble	1.9 u	UG/L	1.9	1.0
		Selenium, Soluble	3.9 u	UG/L	3.9	1.0
	-	Tin, Soluble	4.0 u	UG/L	4.0	1.0
		Vanadium, Soluble	25.4	UG/L	0.60	1.0
		Zinc, Soluble	288	UG/L	0.40	1.0
-002	B1B3V0	Arsenic, Total	3.6 u	UG/L	3.6	1.0
		Barium, Total	58.3	UG/L	0.20	1.0
		Chromium, Total	4.8	UG/L	0.60	1.0
		Lead, Total	1.9 u	UG/L	1.9	1.0
		Selenium, Total	3.9 u	UG/L	3.9	1.0
		Tin, Total	4.0 u	UG/L	4.0	1.0
		Vanadium, Total	26.7	UG/L	0.60	1.0
		Zinc, Total	391	UG/L	0.40	1.0
-003	B1B3V1	Arsenic, Soluble	3.6 u	UG/L	3.6	1.0
		Barium, Soluble	57.2	UG/L	0.20	1.0
		Chromium, Soluble	5.3	UG/L	0.60	1.0
		Lead, Soluble	1.9 u	UG/L	1.9	1.0
		Selenium, Soluble	3.9 u	UG/L	3.9	1.0
		Tin, Soluble	4.0 u	UG/L	4.0	1.0
		Vanadium, Soluble	25.2	UG/L	0.60	1.0
		Zinc, Soluble	286	UG/L	0.40	1.0
-004	B1B3V2	Arsenic, Total	3.6 u	UG/L	3.6	1.0
		Barium, Total	61.2	UG/L	0.20	1.0
		Chromium, Total	5.1	UG/L	0.60	1.0
		Lead, Total	1.9 u	UG/L	1.9	1.0
		Selenium, Total	5.7	UG/L	3.9	1.0
		Tin, Total	4.0 u	UG/L	4.0	1.0
		Vanadium, Total	27.0	UG/L	0.60	1.0
		Zinc, Total	381	UG/L	0.40	1.0

INORGANICS DATA SUMMARY REPORT 10/18/04

CLIENT: TNUHANFORD B03-018 H2724
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0409L677

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-005	B1B3V3	Arsenic, Soluble	3.6 u	UG/L	3.6	1.0
		Barium, Soluble	60.9	UG/L	0.20	1.0
		Chromium, Soluble	3.8	UG/L	0.60	1.0
		Lead, Soluble	1.9 u	UG/L	1.9	1.0
		Selenium, Soluble	3.9 u	UG/L	3.9	1.0
		Tin, Soluble	4.0 u	UG/L	4.0	1.0
		Vanadium, Soluble	26.1	UG/L	0.60	1.0
		Zinc, Soluble	7.3	UG/L	0.40	1.0
-006	B1B3V4	Arsenic, Total	3.6 u	UG/L	3.6	1.0
		Barium, Total	62.1	UG/L	0.20	1.0
		Chromium, Total	27.6	UG/L	0.60	1.0
		Lead, Total	1.9 u	UG/L	1.9	1.0
		Selenium, Total	4.6	UG/L	3.9	1.0
		Tin, Total	4.0 u	UG/L	4.0	1.0
		Vanadium, Total	26.8	UG/L	0.60	1.0
		Zinc, Total	3.1	UG/L	0.40	1.0
-007	B1B3V5	Arsenic, Soluble	3.6 u	UG/L	3.6	1.0
		Barium, Soluble	1.0	UG/L	0.20	1.0
		Chromium, Soluble	0.60 u	UG/L	0.60	1.0
		Lead, Soluble	1.9 u	UG/L	1.9	1.0
		Selenium, Soluble	3.9 u	UG/L	3.9	1.0
		Tin, Soluble	4.0 u	UG/L	4.0	1.0
		Vanadium, Soluble	0.60 u	UG/L	0.60	1.0
		Zinc, Soluble	8.0	UG/L	0.40	1.0
-008	B1B3V6	Arsenic, Total	3.6 u	UG/L	3.6	1.0
		Barium, Total	0.67	UG/L	0.20	1.0
		Chromium, Total	0.60 u	UG/L	0.60	1.0
		Lead, Total	1.9 u	UG/L	1.9	1.0
		Selenium, Total	3.9 u	UG/L	3.9	1.0
		Tin, Total	4.0 u	UG/L	4.0	1.0
		Vanadium, Total	0.60 u	UG/L	0.60	1.0
		Zinc, Total	34.5	UG/L	0.40	1.0

INORGANICS DATA SUMMARY REPORT 10/18/04

CLIENT: TNUHANFORD B03-018 H2724 LVL LOT #: 0409L677

WORK ORDI	SK. 11343-606-001-3333-				REPORTING	DILUTION
SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	LIMIT	FACTOR
	***********	****	=======		=========	=======
-009	B1B3T5	Arsenic, Soluble	3.6 u	UG/L	3.6	1.0
		Barium, Soluble	68.7	UG/L	0.20	1.0
		Chromium, Soluble	11.6	UG/L	0.60	1.0
		Lead, Soluble	1.9 u	UG/L	1.9	1.0
		Selenium, Šoluble	3.9 u	UG/L	3.9	1.0
		Tin, Soluble	4.0 u	UG/L	4.0	1.0
		Vanadium, Soluble	24.8	UG/L	0.60	1.0
		Zinc, Soluble	12.8	UG/L	0.40	1.0
-010	B1B3T6	Arsenic, Total	3.6 u	UG/L	3.6	1.0
		Barium, Total	68.2	UG/L	0.20	1.0
		Chromium, Total	22.7	UG/L	0.60	1.0
		Lead, Total	1.9 u	UG/L	1.9	1.0
		Selenium, Total	3.9	UG/L	3.9	1.0
		Tin, Total	4.0 u	UG/L	4.0	1.0
		Vanadium, Total	25.3	UG/L	0.60	1.0
		Zinc, Total	54.5	UG/L	0.40	1.0
-014	B1B3T7	Arsenic, Soluble	3.6 u	UG/L	3.6	1.0
		Barium, Soluble	39.9	UG/L	0.20	1.0
		Chromium, Soluble	15.6	UG/L	0.60	1.0
		Lead, Soluble	1.9 u	UG/L	1.9	1.0
		Selenium, Soluble	3.9 u	UG/L	3.9	1.0
		Tin, Soluble	4.0 u	UG/L	4.0	1.0
		Vanadium, Soluble	27.0	UG/L	0.60	1.0
		Zinc, Soluble	6.9	UG/L	0.40	1.0
-015	B1B3T8	Arsenic, Total	3.6 u	UG/L	3.6	1.0
		Barium, Total	39.2	UG/L	0.20	1.0
		Chromium, Total	19.3	UG/L	0.60	1.0
		Lead, Total	1.9 u	UG/L	1.9	1.0
		Selenium, Total	3.9 u	UG/L	3.9	1.0
		Tin, Total	4.0 u	UG/L	4.0	1.0
		Vanadium, Total	27.1	UG/L	0.60	1.0
		Zinc, Total	25.0	UG/L	0.40	1.0

INORGANICS METHOD BLANK DATA SUMMARY PAGE 10/18/04

CLIENT: TNUHANFORD B03-018 H2724

LVL LOT #: 0409L677

				REPORTING	DILUTION
SITE ID	ANALYTE	RESULT	UNITS	LIMIT	FACTOR
***********	**************	*======	======	========	=======
04L0629-MB1	Arsenic, Total	3.6 u	UG/L	3.6	1.0
	Barium, Total	0.39	UG/L	0.20	1.0
	Chromium, Total	0.60 u	UG/L	0.60	1.0
•	Lead, Total	1.9 u	UG/L	1.9	1.0
	Selenium, Total	3.9 u	UG/L	3.9	1.0
	Tin, Total	4.0 u	UG/L	4.0	1.0
	Vanadium, Total	0.60 u	UG/L	0.60	1.0
	Zinc, Total	5.8	UG/L	0.40	1.0
	04L0629-MB1	04L0629-MB1 Arsenic, Total Barium, Total Chromium, Total Lead, Total Selenium, Total Tin, Total Vanadium, Total	04L0629-MB1 Arsenic, Total 3.6 u Barium, Total 0.39 Chromium, Total 0.60 u Lead, Total 1.9 u Selenium, Total 3.9 u Tin, Total 4.0 u Vanadium, Total 0.60 u	04L0629-MB1 Arsenic, Total 3.6 u UG/L Barium, Total 0.39 UG/L Chromium, Total 0.60 u UG/L Lead, Total 1.9 u UG/L Selenium, Total 3.9 u UG/L Tin, Total 4.0 u UG/L Vanadium, Total 0.60 u UG/L	SITE ID ANALYTE RESULT UNITS LIMIT 04L0629-MB1 Arsenic, Total 3.6 u UG/L 3.6 Barium, Total 0.39 UG/L 0.20 Chromium, Total 0.60 u UG/L 0.60 Lead, Total 1.9 u UG/L 1.9 Selenium, Total 3.9 u UG/L 3.9 Tin, Total 4.0 u UG/L 4.0 Vanadium, Total 0.60 u UG/L 0.60

INORGANICS ACCURACY REPORT 10/18/04

CLIENT: TNUHANFORD B03-018 H2724

LVL LOT #: 0409L677

			SPIKED	INITIAL	SPIKED		DILUTION
SAMPLE	SITE ID	ANALYTE	SAMPLE	RESULT	TRUDOMA	*RECOV	FACTOR (SPK)
	=======================================			======	=====	*****	*========
-002	B1B3V0	Arsenic, Total	1980	3.6 u	2000	98.9	1.0
		Barium, Total	2040	58.3	2000	99.1	1.0
		Chromium, Total	200	4.8	200	97.4	1.0
		Lead, Total	485	1.9 u	500	96.9	1.0
		Selenium, Total	2000	3.9 u	2000	100.0	1.0
		Tin, Total	986	4.0 u	1000	98.6	1.0
		Vanadium, Total	507	26.7	500	96.1	1.0
		Zinc, Total	865	391	500	94.9	1.0

INORGANICS PRECISION REPORT 10/18/04

CLIENT: TNUHANFORD B03-018 H2724 WORK ORDER: 11343-606-001-9999-00 LVL LOT #: 0409L677

			INITIAL			DILUTION
SAMPLE	SITE ID	ANALYTE	RESULT	REPLICATE	RPD	FACTOR (REP)
======			*******	*======	····	
-001REP	B1B3T9	Arsenic, Soluble	3.7	3.6 u	0.36 Millshan	1.0
		Barium, Soluble	56.3	56.1	0.36 Ma's/1810	1.0
		Chromium, Soluble	5.5	2.8	65.1	1.0
		Lead, Soluble	1.9 u	1.9 u	NC	1.0
		Selenium, Soluble	3.9 u	3.9 u	NC	1.0
		Tin, Soluble	4.0 u	4.0 u	NC	1.0
		Vanadium, Soluble	25.4	25.5	0.39	1.0
		Zinc, Soluble	288	312	8.0	1.0

INORGANICS LABORATORY CONTROL STANDARDS REPORT 10/18/04

CLIENT: TNUHANFORD B03-018 H2724 LVL LOT #: 0409L677

			SPIKED	SPIKED		
SAMPLE	SITE ID	ANALYTE	SAMPLE	TRUDOMA	UNITS	%RECOV
=======	=======================================	=======================================			=====	*****
LCS1	04L0629-LC1	Arsenic, LCS	1950	2000	UG/L	97.6
		Barium, LCS	1930	2000	UG/L	96.6
		Chromium, LCS	197	200	UG/L	98.4
		Lead, LCS	493	500	UG/L	98.6
		Selenium, LCS	2010	2000	UG/L	100.6
		Tin, LCS	992	1000	UG/L	99.2
		Vanadium, LCS	480	500	UG/L	96.0
		Zinc, LCS	496	500	UG/L	99.2

Custody Transfer Record/Lab Work Request Page / of 2 Lionville Laboratory Use Only 04/09/ 677 FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS MORRALL SAF# 1304-00> 803-018 ュ Client TNU HANFURD Refrigerator # 0 G Liquid Est. Final Proj. Sampling Date #/Type Container Project # 11343 - 606 - 001 - 9999 -00 Solid 500 500 500 500 500 20 110 500 40 Liquid Project Contact/Phone # ____ Volume Lionville Laboratory Project Manager __O_J Solid HAUZ HAUZ -> 1/2/41 H2504 Hel Del Std **Preservatives** ALK IC ORGANIC INORG **ANALYSES** Date Rec'd 9/18/04 Pest/ PCB REQUESTED Lionville Laboratory Use Only Matrix MATRIX INSNA QC 8 CODES: ATK Time Lab Chosen Date Matrix Client ID/Description meQ S - Soil Collected Collected SE - Sediment SO - Solid MS MSD SL - Sludge MADOIM B1B3T9 (F) 7-15-14 W - Water 1102 001 O- Oil A - Air 002 DS - Drum \$19/2VM (F) Solids DL - Drum 3 Liquids EP/TCLP Jog bolor 0914 Leachate 005 WI - Wipe X - Other 1006 F - Fish 1 199/30/14 V5(F) 0800 007 008 T5 (F) 1044 1 10150 pr DATE/REVISIONS: 10/4/04 1. Per client/PM SAF# = 803-018 Lionville Laboratory Use Only Special Instructions: Run Matrix QC Tamper Resistant Seal was: Samples were: 1) Shipped ---- or 1) Present on Outer Package Y or N Hand Delivered _____ MED = As, Ba, Cr, Pb, Se, Sn, V, Zn Airbill # 2) Unbroken on Outer Package Y or N IC(1) = CL, FL, Br, NO2, NO3, SO4, PO4 2) Ambient or Chilled 3) Present on Sample Y or N 3) Received in Good Condition Y 20 N 4) Unbroken on 4) Samples Sample Y or N Properly Preserved COC Record Present Received Discrepancies Between Y or N Relinquished Upon Sample Rec't Relinquished Received Date Date Time Samples Labels and by Y or N 5) Received Within

ORIGINAL

"COMPOSITE

WASTE"

9-18-04

2001

COC Record? Y or N

NOTES:

Cooler

Temp. ____

Holding Times

Y or N

Lionville Laboratory Use Only 04091677

Custody Transfer Record/Lab Work Request Page _	<u>م</u> of <u>م</u>
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FIELD	PERSONNEL:	COMPLETE	ONLY	SHADED AREAS
				A-C

Est. Final Proj. Sampling Date Project # Project Contact/Phone # Liquid ## Solid Volume V	- T/	111 +	lanford Boy-003			Refriger	rator #		1						2	2	3	2	a	2	2	1		
Volume Solid								Liquid	G						P	P		P	P	P	P	G	$\boldsymbol{\ell}$	
Volume Solid			,			#/Type Container Solid																		
Companies Collected Coll	Project #		100 PS					Liquid	40						510	500		500	500	200)	שטב	500	20	
Date Rec'd Date Due ANALYSES REQUESTED Date Dus Date D	Project Conta	CVPNON	Project Monday			Volume	•	Solid																
Date Rec'd	Cionville Labo	oratory	Project madager			Preserv	/atives		Hel						Huz 6	W2	,	Harz	-	Bu	/ —	1/250	_	Í
MATRIX CODES: S. Soil S. Soil S. Soid	<u>uc</u>		Del IAI							ORG	T				5/2	INC	RG	ZC		NOZ		7.	401	ĺ
MATRIX CODES: S. Soil	Date Rec'd		Date Due					-	Ϋ́OΑ	BNA	Pest/ PCB	Herb			meta So	Metal	S	ANO.	70	1/3	TOS	.ox	₹a/	r
COCDES: 5 - Soil 5 - Soil 5 - Soil 5 - Soil 6 -				NA.	ately		1			·	<u>. </u>	1	·	Lionv						1				
SI Sludge W Water O Oil A. Air Dr Oil A. Air Solids DL Drum Liquids L EP/TCLP Leachate W Wile W Wile X Other F Fish O/G BIB 439	CODES: S - Soil SE - Sediment		- Client ID/Description	Ch	QC osen	Matrix			HARI						E.050	eOro		(D) 2:	ALKL	CN3ND	Etto S	70X		
W- Water O// B1B 440 O-Oil OIL Orum Solids DL- Drum Leachate WI- Wipe X- Other F- Fish W- Water O// B1B 440 W 9-18-09 858 3 U 9-18-09 858 3 U 9-18-09 858 3 U 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				MS	MSD						<u> </u>				Z.	٤		\ ''	1-1	12		1-1		l
A- Air DS- Drum Solids DL- Drum Liquids	W - Water	011	B1B440			W	9-15-04	0850	3		<u> </u>								ļ	<u> </u>		<u> </u>		l
Solids DL - Drum Liquids L - EP/TCLP Leachate WI - Wipe X - Other F - Fish Solids DL - 442 - 444 - 444 - 444 - 444 - 444 - 444 - 444 - 444	A - Air		1 441		I	1		0800	3		<u>. </u>							·	<u> </u>	<u> </u>				1
Liquids L- EP/TCLP Leachate WI- Wip- F- Fish Liquids Liquids Logonary 1	Solids		1 442				T	1	3															
L- EP/TCLP Leachate WI- Wipe X- Other F- Fish Leachate WI- Wipe A		0111			1		2-16-04	0833							-1	W	1960	M		<u> </u>				ĺ
WI - Wipe x - Other F - Fish	1 . 1 . 4 4			1	1		,		3							1		1	1	1	1	.1		
F- Fish	WI - Wipe			十一	 	一	11							1.0									,	
	F - Fish	016	DIB 4 39	+-	+-	-	 	013	-	 	 													
T Leaville Lebestery Dec Only				+			1			-	-	-	 -					1	†	T				
The state of the s				┼	1-	 	-	 			+	 	 			 	 		+-	+			. /	
Lieuwille Leberatory Use Only				1_		_	<u> </u>	<u> </u>	 	-	-	 	-	-		├-	 	+		+-		 	 	
							· .		<u> </u>	<u> </u>		1	<u> </u>	1	L	┸╤		Hone	llo I ch	orator	Lise C	Inly		; 1

Special Instructions:	1
men = As, Ba, Cr, Pb, Se, Sn, V, Zn	
110(1) = AS, Ba, CI, PO, BE, SITTIA	2
	3
0.44	4

TCO= CL,Br, NO3, NO3, SOU, POY, FL	-
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Relinquished by	Received by	Date	Time
C.S. Es	14-1	2/18/01	1005
1	10	1	1115

Relinquished by	Received by	Date	Time
		1	

Samples were:
1) Shipped or
Hand Delivered
Airbill #

DD

er Conchilled 3) Received in Good

Condition Y or N
4) Samples
Properly Preserved

5) Received Within Holding Times

Discrepancies Between

COC Record? Y or N

Samples Labels and

NOTES:

COC Record Present Y or N Upon Sample Rec't

Y or N

Y or N Cooler

4) Unbroken on Sample Y or N

Tamper Resistant Seal was: Present on Outer
Package Y or N 2) Unbroken on Outer Package Y or N

3) Present on Sample Y or N

Temp.

PNNL SDG#	. H272	14			СНА	N OF C		04-002-2
ollector	DURATEK			-		Contact/Rec		of <u>2</u>
AF No.	F.M. HALL					Dot Stews Sampling O	tigin 509-376-5056 Purchase Order/Charge Code	
B04-002 roject Title	··· = =						HAMFORD SITE	
ERDF SEPT 200 hinned To (Lah)						Method of S	$-3\mu\omega$) μ 03	
TMA/RECRA	randamente et en al ante et et en en L'haberataman e la la la la la la la	e ala Zukea	and a second substitution of the second seco	u nentverene i Million Westin	Andrew State Control of the Control	Govt True	1920 9058	2469
rotocol CERCLA OSSIBLE SAMI							Priority: 45 Days Offsite Property No.	
••	1	ı	ı					
Sample No.	Lab ID	*	Date	Time		e Container	Sample Analysis	Preservative
B1B3T9 (F)			9-15-04	110	2 1x500-m	L G/P	ICP Metals - 6010TR (Client List)	HNO3 to pH <2
B1B3V0		W	1		3x40-mL	. aGs*	VOA - 8260A (TCL)	HCI or H2SO4 to pH <2 Cool 4C
B1B3V0		W			1x500-m	L G/P	ICP Metals - 6010TR (Client List)	HNO3 to pH <2
B1B3V0		w			1x500-m	IL P	IC Anions - 300.0	Cool 4C
B1B3V0		w			1x200-n	nL G/P	Alkalinity - 310.1	Cool 4C
B1B3V0		w		1	1x300-n	nL G/P	NO2/NO3 - 353.2	H2SO4 to pH <2 Cool 4C
B1B3V0		W			1x20-m	L P	Activity Scan	None
B1B3V0		w		1 1	2x1000	mL G/P	Gross Alpha	HNO3 to pH <2
B1B3V0		W	1 1	1 1	2x1000	mL G/P	Gross Beta	HNO3 to pH <2
B1B3V0	:	W			1x125-r	nL G/P	Carbon-14	None
B1B3V0		W	1 1	1 1	4x1000	-mL G/P	lodine-129	None
B1B3V0		W	1	-	2x1000	-mL G/P	Radium -226	HNO3 to pH <2
Relinquished F. M. I			Sign	.el		te/Time <i>[401</i>	Received By Print Sign Date/Time Matrix FEO FL S = Soil	-
Relinquished By Relinquished By	D Ex	5	9/1	407	P (s	te/Time	Received By Fred Sara 2 Date/Time S = Soil SE = Setiment SO = Solid SI = Sludge W = Water O = Oil	DS = Drum Soli DI. = Drum Lion T = Tissue WI = Wine L = Lionid V = Vegetation

Received By

FINAL SAMPLE DISPOSITION

Relinquished By

Disposal Method (e.g., Return to customer, per lab procedure, used in process)

778-09

Date/Time

1115

Date/Time

C.O.C.# PNNL CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST B04-002-2 SDa# H2724 2 of 2 Page SAF No. Contact/Requestor Telephone No. **MSIN** B04-002 FAX **Dot Stewart** 509-376-5056 Sample No. Lab ID Date Time No/Type Container Sample Analysis Preservative **B1B3V0** W 1x250-mL G/P Technetium-99 1102 0-15-04 HCI to pH <2 **B1B3V0** W 1x100-mL G/P **Total Uranium** HNO3 to pH <2 **B1B3V0** W 1x500-mL G/P TDS - 180.1 Cool 4C B1B3V0 W 1x500-mL aGs* TOX - 9020 H2SO4 to pH <2 Cool 4C Relinquished By Date/Time 1460 Received By Sign Print Date/Time Matrix * SEP 15 2004 F. M. HALL = Soil - Drum Solid Relinquished By Date/Time Fred Samo Date/Time Sediment - Drum Liqui SO SL W - Solid - Tissue : 25 - Shidge - Wine = Water = Liquid Relinquished By Date/Time - Oil - Vegetation - Other Relinquished By

Date/Time

FINAL SAMPLE

DISPOSITION

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PNNL	H2724				CHAI	N OF	CUSTODY/S	AMPL	E ANAL	YSIS RE	QUEST		C.O.C. #		04-002	2-3
Collector	DURATEK					Contact/Re	Aguartan						Pa	ge <u>l</u>	of <u>2</u>	
	F.M.HMLL					Dat Ctarry				Te	lephone No.	MSI	i	FAX		
SAF No.	· · · · · · · · · · · · · · · · · · ·					Sampling (Origin HANFOLW				509-376-5056 rchase Order/Cha	C1				
B04-002 Project Title							HATTOW	SITE		Į.						
ERDF SEPT 2	004					1 7-	5- SAWS HI	07		Ice	Chest No. Spel		Temp.			
Shinned To (Lat	0)				·	Method of	SH	<u>, , </u>			Spel	- 370				į.
TMA/RECRA	namanan kalendari ya 1922. Mananan 1921			range sa	بنهاري معتدر بهادرده فيساد	Govt Tru				Bil	li of Lading/Air Bi	II No. 7	2200			
Protocol			· • · · · · · · · · · · · · · · · · · ·		At taken a more than	- CANT IN					M. 1. T.		109	1058	<u>240</u>	, 4
CERCLA POSSIBLE SAM							Prior	ity: 45 Days	3	Joi	Tsite Property No.					
**	H CE HAZARE	S/RE	MARKS					SPECIAL IN	STRUCTIONS	Hold Ti	me	Total Ac	ivity Exe	mption:	ícs 🗹 ì	lo L
Sample No.	Lab ID	•	Date	Tim	e No/Type	Container	T		Si	ample Analysis			·			
B1B3V1 (F)		W	9-15-04	110	1x500-mi	L G/P	ICP Metals - 6010TR (Client List)							Preservat	- 1
B1B3V2		w		17	3x40-mL	aGs*	VOA - 8260A (TCL)			·				l	HCI or H2	
B1B3V2		w		 	1x500-m	L G/P	ICP Metals - 6010TR (Client List)							pH <2 Co	ol 4C
B1B3V2		w	 	++-	1x500-m	L P	IC Anions - 300,0					· · · · · · · · · · · · · · · · · · ·				⊃⊓ <2 ———
B1B3V2	 	w	- -	++	1x200-m	L G/P	Alkalinity - 310.1				·		-		Cool 4C	
B1B3V2		w	 	++	1x300-m	L G/P	NO2/NO3 - 353.2								Cool 4C	
B1B3V2		w	 	+-	1x20-mL	Р	Activity Scan			-					H2SO4 to Cool 4C	pH <2
B1B3V2		W		+-	2x1000-r		Gross Alpha				·				None	
B1B3V2		w		++							·				HNO3 to	pH <2
B1B3V2			 		2x1000-r		Gross Beta								HNO3 to	pH <2
		W			1x125-m		Carbon-14						·		None	
B1B3V2		W			4x1000-r	nL G/P	lodine-129								None	
B1B3V2		W	1	4	2x1000-r	nL G/P	Radium -226		-						HNO3 to	pH <2
Relinquished By	Print Print	S	Singon Constitution of the	1ee	Date SEP	/Time / 400	Received By	Print	Sign		Date/Time	s	• Soil	Matrix	÷	C-1:4
Relinquished By	Fee) 2	Ž	9/		/Time 0:25	Received By	Fred	Saras	9/14/64	Date/Time 3: 15	SE SO SL	Sedimen Solid Sludge		DI. = D	ine .
Relinquished By	10	, ,	×	al	,	/Time	Received By F	3 En	9	1116+	Date/Time	ο	Water Oil Air		v - v	anid esetation ther
Relinquished By	Fo		Es	9-18	Date	Time	Received By		9-18-00	7 1115	Date/Time	L				-
FINAL SAMI		Metho	d (e.g., Return		r, per lab procedu		cess)	0	Disposed By				D	ate/Time		

FINAL SAMPLE DISPOSITION

C.O.C.# PNNL CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST B04-002-3 SDG# H2724 Page of 2 SAF No. Contact/Requestor Telephone No. MSIN FAX B04-002 Dot Stewart 509-376-5056 Sample No. Lab ID No/Type Container Date Time Sample Analysis Preservative **B1B3V2** W 1x250-mL G/P Technetium-99 HCI to pH <2 1102 **B1B3V2** Ŵ 1x100-mL G/P **Total Uranium** HNO3 to pH <2 B1B3V2 W 1x500-mL G/P TDS - 160.1 Cool 4C **B1B3V2** W 1x500-mL aGs* TOX - 9020 H2SO4 to pH <2 Cool 4C Date/Time /400 Received By Date/Time Matrix * Relinquished By DURATEK - Soil DŚ - Drum Solid Relinquished B Sediment DI. = Drum Limi - Solid - Tissue = Sludge = Wine = Water = Lianid = Oil = Vegetation Relinquished By = Other Relinquished By

FINAL SAMPLE

DISPOSITION

Disposal Method (e.g., Return to customer, per lab procedure, used in process)

Date/Time

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PNNL							NOE				4		(C.O.C. #	73.		
8DQ#	H272	4				CHAI	N OF (CUSTODY/S	SAMPLE AN	ALYSIS R	EQUES	T	-				02-4
Collector R. I.	SICKLE		1				Contact/Re	quester		Т	elephone No.		MSIN	Pag	FAX	of	2
SAF No.							Dot Stew Sampling O		d sik	P	_509-376-505 urchase Ord		e Code				
B04-002 Project Title							<u>, U</u>	Ts -SAWS-17		1	ce Chest No.	0.4	2- (Temp.			
ERDF SEPT 2004 Shinned To (Lah)		g 31 4 m	*******			and the state of t	Method of S		107		Bill of Lading	/Air Bill	M-				
TMA/RECRA Protocol	e ne poet e en toere	or emanyous	e	araana sa	ALC: LIVE		Govt Tru				Offsite Proper		71	20 9	058	24	91
CERCLA POSSIBLE SAMPI	LE HAZARD	S/RE	MARKS						ity: 45 Days SPECIAL INSTRUCT	<u> </u>	<u> </u>		Total Acti	uin C.		v- 1.0	
** **									or Delab Indirect	TONS HOLE	·	÷	Total Acti	VRY EXEM	iption:	Yes &	No L
Sample No.	Lab ID	•	Date		ime	No/Type	Container		-	Sample Analysis	s					Preser	vative
B1B3V3 (F)		W	9-15-0	oy 09	7/4	1x500-ml	. G/P	ICP Metals - 6010TR	(Client List)							HNO3	to pH <2
B1B3V4		W	\		l	3x40-mL	aGs*	VOA - 8260A (TCL)								HCI or	H2SO4 to
B1B3V4		w				1x500-ml	. G/P	ICP Metals - 6010TR	(Client List)							HNO3	Cool 4C to pH <2
B1B3V4		W				1x500-ml		IC Anions - 300.0								Cool 4	c
B1B3V4		W			1	1x200 ml	. G/P	Alkalinity - 310.1				•				Cool 4	c
B1B3V4		W			\top	1x 200 -ml		NO2/NO3 - 353.2									4 to pH <2
B1B3V4		W				1x20-mL		Activity Scan								None	C
B1B3V4		W				2x1000-r	nL G/P	Gross Alpha								HNO3	to pH <2
B1B3V4		W				2x1000-r	nL G/P	Gross Beta								HNO3	to pH <2
B1B3V4		W	$\prod J$		i	1x125-m	L G/P	Carbon-14								None	
B1B3V4		W				4x1000-r	nL G/P	lodine-129							-	None	
B1B3V4		W	+		N. Carlotte	2x1000-r	nL G/P	Radium -226							 .	HNO	to pH <2
Relinquished By R.T. SIC	KLE			ž En	•		Time, 403	Received By Fal Tx	Print	Sign	Date/Tir	ne	8	Soil	Matrix	•	Drum Solid
Relinquished By Relinquished By	Feb 10	5	~ ~~	9//	6/0	Date Date	/Time	Received By Received By	Fred Samen	9/16/py	Date/Tir	5	SE SO SI. W	Sediment Solid Sludge Water Oil Air		DI T - WI - I V -	Drum Limi Tissue Wine Limid
Relinquished By	Felt) P		9-	18-0	Date	/Time	Received By	en a-l	9-18	Date/Tis	me / 00 9	<u></u>				
FINAL SAMPL DISPOSITION		Metho	od (e.g., Ret		<u> </u>		re, used in pro	cess)	Dispo	osed By	7	100,		Da	te/Time		

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PNNL					•	CHAIN OF	CUSTODV	/CAMDI E	ANALYSIS R	EOUECT	C.O.C.#	B04-0	102-4
SDQ#	H272	4					COSTODIA	SAWII LE	ANALISIS	ŒQUESI			
SAF No. B04-002				-~	-	Contact/Requestor Dot Stewart			Telephone 509-376-		Page SIN FAX	2 of	2
Sample No.	Lab ID	*	Date	Tim		No/Type Container		Carrello Arrelou		210.18			
B1B3V4		W	9-15.04			1x250-mL G/P	Technetium-99	Sample Analys	is		Preserv	HCI to	pH <2
B1B3V4	1	W		1		1x100-mL G/P L 9-15-04	Total Uranium					HNOS	3 to pH <2
B1B3V4		W				1x500-mL G/P	TDS - 160.1					Cool 4	€C
B1B3V4		W	+	-6	_	1x500-mL aGs*	TOX - 9020			·		H2SC Cool	04 to pH <2 4C
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Relinquished By	Prjr	4				Date/Time /408	Received By	Print	Sign	Date/Time			
Relinquished By R.T. SIC Relinquished By	KLE					SEP 1 5 2004	Fed Ex		J.g.	Date Time		trix *	
Relinquished By		5		/ .		Date/Time	Received By	Fred	Sarao	Date/Time	S = Soil SE = Sediment SO = Solid	DI.	= Drum Solid = Drum Liqui = Tissue
Relinquished By	400	ye	· 9,	116/	σ φ	Date/Time	Received By)	Daw	o The f	P 4:15 Date/Time	SI. = Sludge W = Water O = Oil	Wī I.	= Wine = Limid
	12	Do	200	9	101	مرم عوزد مرم	£.	≥ ‰	9/17/04	Date I tile	A = Air	×	VegetationOther
Relinquished By	()-0	ρ		0 :0	,	Date/Time U	Received By	0	, , , , , , , , , , , , , , , , , , ,	Date/Time			
FINAL SAMPI		J Meth	od (e.g., Return	9-/8 to custon		lab procedure, used in pro		money	9-8-04 Disposed By	1005	Date/Ti	me	
DISPOSITIO	N-								- ·				

PNNL SDG #	11077211	,			(CHAIN	OF C	CUSTODY/S	SAMPLE	ANAL	YSIS RI	EQUEST	C	C.O.C.#	B04-002-5	5	
			1									7		Page	1 of 2	-	
Collector R.T.	SICKLE					C	Contact/Requester Telephone No.					M		AX			
SAF No.	1						Dot Stews		1 5-1		P	509-376-5056	.			4	
B04-002 Project Title							7,000 1000 3. 7										
ERDF SEPT 2004	l						DTS - 5 A 103 - 1184 Ice Chest No. ERC-99.0587										
Shinned To (Lah) ITMA/RECRA	ing samuel in the same of			18.18.19.19			lethod of S Govt True				B	ill of Lading/	Air Bill No. 7	720 04	58 2480	7	
Protocol CERCLA				٠٠					ority: 45 Days		-6	Maite Propert	VIV.DT 2	14126	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	\dashv	
POSSIBLE SAMPI	LE HAZARD	S/RE	MARKS		· · · · · · · · ·		·		SPECIAL INS	TRUCTIONS					ion: Yes 🗹 No	\dashv	
** **	\$												1014	TOUTHY EXCHIP	.ion. 165 🖭 140 1		
																	
Sample No.	Lab ID	*	Date	. 1	Time	No/Type C			Sample Analysis								
B1B3V5 (F)		W	9-1:	40	goo	1x500-mL	G/P	ICP Metals - 6010TF	R (Client List)			-			HNO3 to pH <	:2	
B1B3V6 .		W	1		1	3x40-mL a	Gs*	VOA - 8260A (TCL)				· · · · · · · · · · · · · · · · · · ·			HCl or H2SO4		
B1B3V6		w				1x500-mL	G/P ICP Metals - 6010TR (Client List)								pH <2 Cool 40 HNO3 to pH <		
B1B3V6		W			1x500-mL P IC Anions - 300.0								Cool 4C				
B1B3V6	i.	W				1x 200 -mL		Alkalinity - 310.1			·	<u> </u>			Cool 4C		
B1B3V6		W				1x300-mL プロロータ	G/P	NO2/NO3 - 353.2				· · · · · · · · · · · · · · · · · · ·			H2SO4 to pH Cool 4C	<2	
B1B3V6		W				1x20-mL F		Activity Scan					· <u>.</u>		None		
B1B3V6		W				2x1000-mL	G/P	Gross Alpha							HNO3 to pH	<2	
B1B3V6		W				2x1000-mL	. G/P	Gross Beta							HNO3 to pH •	< <u>2</u>	
B1B3V6		W				1x125-mL	G/P	Carbon-14							None		
B1B3V6	<u> </u>	W	1			4x1000-ml		lodine-129							None		
B1B3V6		W	14		<u> </u>	2x1000-ml	. G/P	Radium -226				-			HNO3 to pH	<2	
Relinquished By R.T. SI	CKLE	W		ign	·	Date/I	, , -	Received By Fel (x	Print	Sign		Date/Tim			Matrix *		
Relinquished By	- 15					Date/I	ime	Received By	Fred:	Sarao	·	Date/Tim	S SF		DS = Drum Dl. = Drum	Lioni	
	FD	23	•	9/1	6/04	10:	L5 .	1 has	an	9/10	104	3:45	SC	. = Sludge	T = Tissue WI = Wine		
Relinquished By			6	T	,	Date/I		Received By			1	Date/Tim	**	= Water = Oil = Air	I. = Liquid V = Veget	tation	
	Ju.	3	<u>Janu</u>	9 (2/17/		MCC!		Σx	9/1	30		^	- All	X = Other		
Relinquished By	F.	۶ () . a	•	9-18-0	Date/	rime U	Received By	and I	9-	18·04	Date/Tin	ie .				
FINAL SAMPL DISPOSITION		Metho	od (e.g., Re		 	r lab procedure	, used in pro	cess)		Disposed By				Date	/Time		

PNNL C.O.C.# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST B04-002-5 80g # H2724 2 of 2 Page SAF No. Contact/Requestor Telephone No. MSIN B04-002 FAX Dot Stewart 509-376-5056 Sample No. Lab ID Time No/Type Container Sample Analysis B1B3V6 W Preservative 1x250-mL G/P Technetium-99 0800 HCI to pH <2 1x100-mL G/P **B1B3V6 Total Uranium** HNO3 to pH <2 Q9-15-04 **B1B3V6** 1x500-mL G/P W TDS - 160.1 Cool 4C **B1B3V6** 1x500-mL aGs* TOX - 9020 H2SO4 to pH <2 Cool 4C Relinquished By Date/Time / 403 Received By Date/Time Matrix *. R.T. SICKLE SEP 1 \$ 2004 - Drum Solid Relinquished By Date/Time - Drum Liqui - Solid - Tissue = Shidee - Wine Relinquished By - Lianid - Oil - Vegetation Relinquished By **FINAL SAMPLE** Disposal Method (e.g., Return to customer, per lab procedure, used in process) Date/Time DISPOSITION

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PNNL &DGr#	H272	4			CHAIN OF	CUSTODY/S	AMPLE A	NALYSIS R	EQUEST	·	B04-002-6		
Collector	SICKLE		1		Contact/Re			Page MSIN FAX	1 of 2				
SAF No.	SIUNLE				Dot Stew Sampling C	origin // C	15:40		509-376-5056 Purchase Order/Charg				
B04-002 Prolect Title			·			Drigin Han for DTS-SAWS-	1/200						
ERDF SEPT 200- Shinned To (Lah)			Note that the state of the	14 NOVE - 15 1 1985	Method of	Shipment	1787		Ice Chest No. ERC	- 99 - 058			
TMA/RECRA Protocol	st. was a recover	5 m. 20	ten intel seine tota eisten .	. Proposition of the second	Goyt Tru		ity: 45 Days		Offsite Property No.	No. 7920 6958	52480		
CERCLA POSSIBLE SAMP	LE HAZARI	S/RE	MARKS			······································	SPECIAL INSTRU	CTIONS Hold	Time	Total Activity Exemption	ves V No		
	r	T 1			•						. 105 (22) 110 (23)		
Sample No.	Lab ID	*	Date	Time	No/Type Container			Preservative					
B1B3T5 (F)			9-15-04	1044	1x500-mL G/P	ICP Metals - 6010TR (ICP Metals - 6010TR (Client List)						
B1B3T6		W)	1	3x40-mL aGs*	VOA - 8260A (TCL)					HCl or H2SO4 to pH <2 Cool 4C		
B1B3T6		W	. 1		1x500-mL G/P	ICP Metals - 6010TR (Client List)				HNO3 to pH <2		
B1B3T6		w			1x500-mL P	IC Anions - 300.0	IC Anions - 300.0						
B1B3T6		W			1x200-mL G/P	Alkalinity - 310.1					Cool 4C		
B1B3T6		W.			1x800 mL G/P	NO2/NO3 - 353.2					H2SO4 to pH <2 Cool 4C		
B1B3T6		W			1x20 mL P	Activity Scan		*** ** ** ** ** ** ** ** ** ** ** ** **	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	None		
B1B3T6		W			2x1000-mL G/P	Gross Alpha					HNO3 to pH <2		
B1B3T6		w			2x1000-mL G/P	Gross Beta					HNO3 to pH <2		
B1B3T6		W			1x125-mL G/P	Carbon-14				VII.2	None		
B1B3T6		W			4x1000-mL G/P	lodine-129					None		
B1B3T6		w	4	1	2x1000-mL G/P	Radium -226					HNO3 to pH <2		
Relinquished By R.T. S	ICKLE Prin				Date/Time/4/05	Received By Fel Ex	Print	Sign	Date/Time	Mat	rix * DS = Drum Solid		
Relinquished By		-	- /	,	Date/Time	Received By	Fred	Saras	Date/Time	SF = Sediment SO = Solid	DI. = Drum Liqui T = Tissue		
Relinquished By	≥ %		9/4	104	/a: 25 Date/Time	Received By	<u>Janes</u>	9/16/0-	Date/Time	SI. = Studge W = Water O = Oil	WI = Wine L = Liquid V = Vegetation V = Chan		
	1	<u>D</u>	Sano	<u> 9</u>	17/24 3:33	tes	22	9/11/04		A = Air	X = Other		
Relinquished By	/_	\sim	<u>_</u> '	,	Date/Time	Received By	•	, , ,	Date/Time				

1005

Disposal Method (e.g., Return to customer, per lab procedure, used in process)

FINAL SAMPLE DISPOSITION 1005

Date/Time

Disposed By

PNNL					C	HAIN	OF (CUSTODY/SAMPLE	NAT VSIS I	PROTIEST	C.O.C.#	304-002-6	
SDGA	H 272	.4		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST Page									
AF No. B04-002	1	·			C	ontact/Requ Dot Stewa	estor rt		Telephone 509-376		FAX		
Sample No.	Lab ID	1.	Date	Ti	ime	No/Type Cor	ntainer	Sample Analysis			Preservati		
B1B3T6			9-1504	10	44	x250-mL G/ <i>よ</i> でさ	P	Technetium-99				HCI to pH <2	╧
B1B3T6		W	1			x 488 -ml G/ ピーリー/	P. 5.07	Total Uranium				HNO3 to pH <2	\dashv
B1B3T6		W				1x500-mL G/	P	TDS - 180.1			· · · · · · · · · · · · · · · · · · ·	Cool 4C	
B1B3T6		W	1		L	1x500-mL aG	38°	TOX - 9020				H2SO4 to pH <2 Cool 4C	2
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	<u> </u>	1_	1	1_									
Relinquished By	Prir	nt	DE Sign			Date/Tim	ne 1400	Received By Print	Sign	Date/Time	Matr	iv *	
	SICKLE	2				SEP 15	2004	Falex	· .	s	= Soil	DS = Drum Sc	olid
Relinquished By	Fo	ے۔ چ	Ex		9/1	Date/Tim	ne	Received By Fred Sar	9/16/04	Date/Time SE SO SI W	= Sediment = Solid = Shidge	D1. = Drum Li T = -Tissue WI = Wine	
Relinquished By	Fre	1	F-17-3	G _i	(, 7,	Date/Tin		Received By	9/17/08	Date/Time O	WaterOilAir	I. = Liquid V = Vegetati X = Other	ion
Relinquished By	2) E		<u> </u>	1 - 1	Date/Tin	пе (Received By	0 00 41	Date/Time			
CINAL CARE	Tal			9	-18/0	<u> </u>	05	1 / Xerry	9-18-04	1005	5.5		
FINAL SAMPI DISPOSITIO		n iaicili	od (e.g., Return t	o cust	omer, per i	ao processare, u	rsen su bu	rous)	Disposed By		Date/Tim	ne e	

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PNNL SDG A		ટ્ય			CHAIN OF			E ANALYS	SIS R	EQUEST	C.0		804-002-8
Collector	F. M. HALL		•		Contact/Re	quester Dot 57	61.115		1	Celephone No. 564 376	MSIN	FAX	
SAF No.	-				Sampling C	Origin		~^	1	urchase Order/Chai	rge Code		
B04-002 Project Title							10 S.			ce Chest No.		T	
ERDF SEPT 2004					<u> </u>		H83			\mathcal{M}	(L) / U	Temp.	
Shinned To (Lab)TMA/RECRA			e e e e e e e e e e e e e e e e e e e	er e e e	Method of	Shipment God	Velu	- lue		Bill of Lading/Air Bil	11 No. 79.	20905	8244
Protocol CERCLA						Prio	rity: 45 Day	s	(Offsite Property No.			
POSSIBLE SAMPI	E HAZARD	S/RE	MARKS			· · ·	SPECIAL II	STRUCTIONS	Hold '	Time	Total Activi	ty Exemption:	Yes V No
•• ••											÷		
Sample No.	Lab ID	*	Date	Time	No/Type Container			Samp	ole Analysi	S			Preservative
B1B440		W	9-15-04	0850	3x40-mL aGs*	VOA - 8260A (TCL)							HCI or H2SO4 to pH <2 Cool 4C
B1B440		w	1	1	1x20-mL P	Activity Scan				, , , , , , , , , , , , , , , , , , , 		 	None None
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L	<u> </u>	<u> </u>	<u> </u>	<u> </u>									
Relinquished F. M. H	EK Print	7	Ngn	20	Date/Time/400 SEP 15 2004	Received By	Print	Sign	·	Date/Time	s -	Matr Soil	
Relinquished By	F2D 2	<u>~</u>	9/1	6/0 p	Date/Time	Received By	Fred	Saras 91	16/04	Date/Time	SE = SO = SL =	Sediment Solid Sludge Water	DS - Drum Solid DL - Drum Lioni T - Tissue WI - Wine L - Lionid
Relinquished By	۸. ۷	<i>1</i>	• 1	ر ماديان	Date/Time	Received By	ورع ا	را	1/10	Date/Time) n =	Oil Air	V = Vegetation X = Other
Relinquished By	29	ام ہو ج	and a	- 41(1/10)	Date/Time	Received By	- D	9-18-04	۱۱۶۴ 	Date/Time			
FINAL SAMPL DISPOSITION		Metho		0 customer, pe	r lab procedure, used in pro	ocess)	and a	Disposed By		15		Date/Tim	e

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		H272			,	СНАІ	IN OF CUSTODY/SAMPLE ANALYSIS REQUEST						C.O.C. # B04-002-9 Page 1 of 1		
Collector	R.I	.SICKL	=				Contact/Requester Telephone No.					MSIN	Page 1 FAX	of 1	
SAF No. B04-002							Sampling (Origin 1/6.p.	Eval 5	1-6	Purchase Order/Char	ge Code			
Project Tit ERDF SI	ile	nd					DT.	5-5AWS-1			Ice Chest No. ERC	29.0 × 1 Ten	np.		
Shinned To	n (Lah)				** *	ere a const	Method of				Bill of Lading/Air Bill	1 No. — ()	- AFG	- 00	
Protocol CERCL								Pric	ority: 45 Days		Offsite Property No.	7920	0458	2480	
		LE HAZARD	S/RE	MARKS		!	l	7110	SPECIAL INST	RUCTIONS H	old Time	Total Activity E	vemntion	Van hel 31	
												Total Activity E	xemption;	Yes (M.) No	
Sample	e No.	Lab ID	*	Date	Time		Container			Sample Ana	lysis			Preservative	
B1B441				9.15-04	0800	3x40-mL	aGs*	VOA - 8260A (TCL)						HCI or H2SO4 to	
B1B441	•		W	+	+	1x20-mL	Р	Activity Scan						pH <2 Cool 4C None	
									•						
		<u> </u>			 		·								
											· · · · · · · · · · · · · · · · · · ·				
			t												
Relinquish	ed By	Print	3			r	Time 2004	Received By	Print	Sign	Date/Time		Matrix		
Relinquish Relinquish Relinquish	ed By	3 &	9	9/16 Daws	/r 4 9/1	Date 10: 12 Date 17/04	/Time	Received By Received By Received By	Fred	Sara= 1 4/16,	Date/Time Date/Time Date/Time	S - Soit SE - Sedir SO - Solid SI - Solid W - Wate O - Oil A - Air	ment t se er	DS = Drum Solid DI = Drum Liqui T = Tissue WI = Wine L = Liquid V = Vegetation X = Other	
		Fed	رسط	, 2. 9.	18-09	6 11	15	11. du	scand	9-18-00				• •	
FINAL DISPO	SAMPI OSITIO		Metho	d (e.g., Return to	o customer, per	r lab procedu	re, used in pro	cess)	4	Disposed By			Date/Time		

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PNNL										C.0).C.#	
20G-1	H27.	24		(CHAIN OF	CUSTODY/	SAMPLE	ANALYSIS R	EQUEST		B0	04-002-10
Collector R.T. SI	CKLE		<u>-</u>		Contact/	Requester			Telephone No.	MSIN	Page 1	of <u>1</u>
SAF No. B04-002					Sampling	Origin Hant	and SE	74	Purchase Order/Char	ze Code		
Project TitleERDF_SEPT_2004						75-5AWL			lce Chest No.	<u> </u>	Temp.	
Shinned To (Lah)TMA/RECRA						of Shipment	112/		Bill of Lading/Air Bill Offsite Property No.	226 No.		
Protocol CERCLA		***	eren deren der		· · · · · · · · · · · · · · · · · · ·	Pri	ority: 45 Days		Offsite Property No.	7920	9058	249/
POSSIBLE SAMPI	E HAZARD	S/RE	MARKS				SPECIAL INST			Total Activity	V Exemption:	Yes V No
										1000710	, exemption.	162 67 140 C
										•		
Sample No. B1B442	Lab ID	* W	Date	Time	No/Type Containe			Sample Analysi	is			Preservative
B1B442		w	4-15-04	0000		VOA - 8260A (TCL)						HCl or H2SO4 to pH <2 Cool 4C
0.0442		-	<u>+</u>	1	1x20-mL P	Activity Scan	-					None None
					!							
		_										
		_		<u> </u>			7					
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							·					
Reliancished BSIC	KI F Print		Sign		Date/Time #4/0	Received By	Print	Sign	Date/Time			<u> </u>
		M			SEP 1 5 2004	Feil Ey		g. .	Date I life		Matri:	•
Relinquished By			9/	16/04	Date/Time	Received By	Fres	Saras	Date/Time		ediment olid	DS = Drum Solid DL = Drum Lioni T = Tissue
Relinquished By					Date/Time	Received By	-aun	7/16/07	2+: 15 Date/Time		/ater	WI = Wine I. = Limid V = Vegetation
D.15	<u>}</u> ^		tudo	9/17/04	3:00 A	F	مرع وي	9/11/04	<u>. </u>	A - A		X = Other
Relinquished By	Felt	ومع		9-18-01	Date/Time	Received By	. 0	3-18-6	Date/Time		· · · · · · · · · · · · · · · · · · ·	
FINAL SAMPLI DISPOSITION		Method	l (e.g., Return to		lab procedure, used in p	process)	8	Disposed By	<i>y (</i> - <u>)</u>		Date/Time	:

TIME		
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CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C.#	
	B04-002-1

							Page 1 of 2			
SICKLE				Contact/Rec	rester Teleph		FAX			
				Sampling O	igin Hayford 5ite Purchs					
4				Ū.	DTG-SAUST- HRY Ice Chest No. 5m L 558 Temp.					
annum seems on the	* Market against	europasson en entragene	The second control of the second control of	Method of S	alpment Bill of	Lading/Air Bill No 79:	27 3263 8/85			
			Service and state and a con-	and the residents	Priority: 45 Days Offsite	Property No.	7			
L E HAZARE)S/REM	ARKS			SPECIAL INSTRUCTIONS Hold Time	Total Activi	ity Exemption: Yes 🗹 No 🗀			
Lab ID	•	Date	Time	No/Type Container	Sample Analysis		Preservative			
	W	7-110-04	2530	1x500-mL G/P	ICP Metals - 6010TR (Client List)		HNO3 to pH <2			
	W	1		3x40-mL aGs*	VOA - 8260A (TCL)		HCI or H2SO4 to pH <2 Cool 4C			
	W.			1x500-mL G/P	ICP Metals - 6010TR (Client List)		HNO3 to pH <2			
	W			1x500-mL P	IC Anions - 300.0					
	W			1×200-mL G/P	S/P Alkalinity - 310.1					
	W			1x3 00 -mL G/P 500 /C/F	NO2/NO3 - 353.2		H2SO4 to pH <2 Cool 4C			
	W			1x20-mL P	Activity Scan		None			
	W			2x1000-mL G/P	Gross Alpha		HNO3 to pH <2			
	W			2x1000-mL G/P	Gross Beta		HNO3 to pH <2			
:	W			1x125-mL G/P	Carbon-14		None			
ř	W			4x1000-mL G/P	lodine-129		None			
] ;	W	•	. 500	2x1000-mL G/P	Radium -228		HNO3 to pH <2			
		Jamo	9/11/0	SEP 1 6 2004 Date/Time Pale/Time Date/Time Date/Time	Received By Fred Sana = Received By Fed Ex Received By Received By	Date/Time	Matrix * Soil DS = Drum Solid Sediment DI = Drum Liqui Solid T = Tissue Sludge WI = Wine Water I = Liquid Oil V = Vegetation Air X = Other			
	Lab ID CKLE	Lab ID WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW	Lab ID Date W 9-11-07 W W W W W W W W W W W W W	Lab ID Date Time W 9-14-04 0 9-3-3 W W W W W W W W W W W W W W W W W W W	SICKLE Contact/Red Dot Stewar Sampling Ord Method of St. Govt Truck LE HAZARDS/REMARKS Lab ID Date Time No/Type Container 1x500-mL G/P 1x125-mL G/P	SICKLE Contact/Requester Dot. Stewart Sop. Sampling Origin Monton Sick Purch Sop.	STEXELE Contact/Requister Dat Stewart Symple Analysis Contact/Requister Dat Stewart Symple Analysis Contact/Charge Code			

PNNL

SDG4 HR724

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C.#

B04-002-1

7 No. 104-002	·						Contact/Requestor Dot Stewart			Telephone No. 509-376-5056	MSIN	FAX			
Sample No.	Lab ID	٠	تــــا	Date	Ti	me	No/Type Container	 	Sample Analysis			Preserva	tive		
B3T8		W	4.	16-19	af	ارورا	1x250-mL G/P	Technetium-99					HCI to	pH <2	
33T8		W		Ī		\overline{I}	1x190-mL G/P	Total Uranium		• •			HNO	3 to pH <2	<u> </u>
B3T8		W					1x500-mL G/P	TDS - 160.1			-		Cool	4C	
B3T8		w	Ŀ	>	-	2	1x500-mL aGs*	TOX - 9020					H2SC Cool	04 to pH < 4C	2
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elinquished By	SICKLE	ni Z	2/	Sign		<i>//</i> _	Date/Time / 46 5 SEP 1 6 2004	Received By	Print	Sign Date/	Time	Ma	trix * .		
elinquished By	FD	//		<i>4, G</i>	<u>a</u> 1		Date/Time	Received By	& Fred	Sara Date	Time SF.	SoilSedimentSolidShulge	DI.	= Drum = Tissue	inni. I
elinquished By	gu	7 /	Q		7//	1	Date/Time	Received By	s Par	Date/	Time O	- Water - Oil - Air	I. V X	WineLiquidVesetsOther	ation
elinquished By			<u>1</u>	نصت		प्रा	Date/Time	Received By	D 7×	9 1 7 0 P Date:					
	1-en	<u> </u>	,		9-	18-04	1005	10-1/1	9-11	3.04 1005					

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CHAIN OF CUSTODY/SAMPLE ANALYSIS DEOLIEST

B04-002-7

C.O.C. #

SDA	1 1427	124	L .	`			SAMI EE AMAE I SIS	TOPOCEST		
llector R.T.					Contest/Pa	Aquester > .		Talashana Na	Page 1	of 1
		-	···		Contactore	equester Do +	steward	Telephone No.	MSIN FAX	
No. 04-002					Sampling (Drigin Hanfor	-d site	Purchase Order/Char	ge Code	
ect Title RDF SEPT 2004					_	775-5A01.		Ice Chest No. 5 m L	Temp.	
ned To (Lah)	era de les des esta coma co		- 1 - 10 - 10 - 10 - 10 - 10 - 10 - 10	an alternative control	Method of			Bill of Lading/Air Bill	ING = 4	
MA/BECBA	a service strains of a		and the second of the second	- Committee - AMPRICATE	the state of the state of the	601	t Truck		1No. 7927 3263	8185
ERCLA						Pric	ority: 45 Days	Offsite Property No.	•	
SSIBLE SAMPI	LE HAZARD	S/RE	MARKS				SPECIAL INSTRUCTIONS H	old Time	Total Activity Exemption:	Yes 🗹 No 🗀
					!					
							,			
Sample No.	Lab ID		Date	Time	No/Type Container	<u> </u>	Samula As	-1		
1B439		w	1		3x40-mL aGs*	VOA - 8260A (TCL)	Sample An	auysis		Preservative HCI or H2SO4 to
		1	9-16-04	0730						pH <2 Cool 4C
1B439		W	4	b	1x20-mL P	Activity Scan				None
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elinquished By	SICKIP	٠	Sign		Date/Time / 400		Print Sign	Date/Time	Matr	ix *
					SEP 1 6 2004	Fed Ex			S = Soil	DS = Drum Solid
elinquished By				, ,	Date/Time	Received By	Fred Saras	Date/Time	SE = Sediment SO = Solid	DI. = Drum Lion T = Tissue
+	WY	2	91	17/04		1800	9117/04	12:35 Am	SI. = Sludge W = Water	WI - Wine I Liquid
elinquished By			. 1	, ,	Date/Time	Received By	, ,	Date/Time	O = Oil A = Air	V = Vegetation X = Other
	/ \~	<u>{ </u>	ann	9/17/0	P 3/23	700	Ex 9/17/.4			Attent
telinquished By	ST.	کے ۱		, ,	Date/Time	Received By	7 -	Date/Time		
EINAL CANCE	- Fel	<u>/ </u>	2		9-18-04 1005		eng 9-18-04	1005		
FINAL SAMPL DISPOSITION		u Methi	oo (e.g., Ketum (to customer, pe	r lab procedure, used in pr	ocess)	Disposed By		Date/Tim	e.

Lionville Laboratory Incorporated SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: THE HANFORD

Date:

Purchase Order / Project# /
SAF#) SOW# / Release #: B04 - 002

LvLI Batch #:

04096677

Sample Custodian: //

	NOTE: E	XPLAIN ALL DI	SCREPANCI	ES	
1.	Samples Hand Delivered or Shipped	Carrier (2 Es	7902764926 Airbil# 1 21	
2.	Custody seals on coolers or shipping container intact, signed and dated?	D Yes	□ No	□ No Seals Comments	
3.	Outside of coolers or shipping containers are free from damage?	D/Yes	□ No		
4.	All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible?	Æ Yes	□ No		
5.	Samples received cooled or ambient?	Temp 2.	y °C	Cooler # 5/NL 510 ERE 99058	
6.	Custody seals on sample containers intact, signed and dated?	D Yes	□ No	□ No Seals	
7.	coc signed and dated?	□ Yes	□ No		
8.	Sample containers are intact?	D Yes	□ No		
. 9	All samples on coc received? All samples received on coc?	□¥65	□ No		
10.	All sample label information matches coc?	DYS	□ No	.*	
11.	Samples properly preserved?	Z Yes	□ No		
12.	Samples received within hold times? Short holds taken to wet lab?	□ Yes	DNO TO	e Anions	
13.	VOA, TOC TOX free of headspace?	□ Yes		ONIA Head space	
14.	QC stickers placed on bottles designated by client?	□ Yes	□ No	DWA .	
15.	Shipment meets LvLl Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy)	□Yes	QNo.		
16.	Project Manager contacted concerning discrepancies? name/date (or samples outside criteria)	A) Yes	□ No	□ No Discrepancies	



Lionville Laboratory, Inc. INORGANIC ANALYTICAL DATA PACKAGE FOR TNUHANFORD B03-018 H2724

DATE RECEIVED: 09/18/04 LVL LOT # :0409L677

	-,			•	,,	1032077
CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B1B3V0						
ALKALINITY	002	W	04LAKB31	09/15/04	09/27/04	09/27/04
BROMIDE BY IC	002	W	04LICB57	09/15/04	09/29/04	09/29/04
BROMIDE BY IC	002 REP	M	04LICB57		09/29/04	09/29/04
BROMIDE BY IC	002 MS	W	04LICB57	09/15/04	09/29/04	09/29/04
CHLORIDE BY IC	002	W	04LICA57	09/15/04	09/29/04	09/29/04
CHLORIDE BY IC	002 REP	W	04LICA57	09/15/04	09/29/04	09/29/04
CHLORIDE BY IC	002 MS	W	04LICA57	09/15/04	09/29/04	09/29/04
FLUORIDE BY IC	002	W	04LIC057	09/15/04	09/29/04	09/29/04
FLUORIDE BY IC	002 REP	W	04LIC057	09/15/04	09/29/04	09/29/04
FLUORIDE BY IC	002 MS	W	04LIC057	09/15/04	09/29/04	09/29/04
NITRITE BY IC	002	W	04LICB57	09/15/04	09/29/04	09/29/04
NITRITE BY IC	002 REP	W	04LICB57	09/15/04	09/29/04	09/29/04
NITRITE BY IC	002 MS	W	04LICB57	09/15/04	09/29/04	09/29/04
NITRATE BY IC	002	W	04LICB57	09/15/04	09/29/04	09/29/04
NITRATE BY IC	002 REP	W	04LICB57	09/15/04	09/29/04	09/29/04
NITRATE BY IC	002 MS	M	04LICB57	09/15/04	09/29/04	09/29/04
PHOSPHATE BY IC	002	W	04LICB57	09/15/04	09/29/04	09/29/04
PHOSPHATE BY IC	002 REP	W	04LICB57	09/15/04	09/29/04	09/29/04
PHOSPHATE BY IC	002 MS	W	04LICB57	09/15/04	09/29/04	09/29/04
SULFATE BY IC	002	W	04LICC57	09/15/04	09/29/04	09/29/04
SULFATE BY IC	002 REP	W	04LICC57	09/15/04	09/29/04	09/29/04
SULFATE BY IC	002 MS	W	04LICC57	09/15/04	09/29/04	09/29/04
NITRATE NITRITE	002	W	04LN3059	09/15/04	10/14/04	10/14/04
NITRATE NITRITE	002 REP	W	04LN3059	09/15/04	10/14/04	10/14/04
NITRATE NITRITE	002 MS	W	04LN3059	09/15/04	10/14/04	10/14/04
TOTAL DISSOLVED SOLI	002	W	04LSS183	09/15/04	09/22/04	09/22/04
TOTAL ORGANIC HALIDE	002	W	04LX018	09/15/04	09/21/04	09/21/04
B1B3V2						
ALKALINITY	004	W	04LAKB31	09/15/04	09/27/04	09/27/04
BROMIDE BY IC	004	W	04LICB57	09/15/04	09/29/04	09/29/04
CHLORIDE BY IC	004	W	04LICA57	09/15/04	09/29/04	09/29/04
FLUORIDE BY IC	004	W	04LIC057	09/15/04	09/29/04	09/29/04
NITRITE BY IC	004	W	04LICB57	09/15/04	09/29/04	09/29/04

Lionville Laboratory, Inc. INORGANIC ANALYTICAL DATA PACKAGE FOR TNUHANFORD B03-018 H2724

LVL LOT # :0409L677

DATE RECEIVED: 09/18/04

CLIENT ID /ANALYSIS	LVL #	мтх	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
NITRATE BY IC	004	W	04LICB57	09/15/04	09/29/04	09/29/04
PHOSPHATE BY IC	004	, W	04LICB57	09/15/04	09/29/04	09/29/04
SULFATE BY IC	004	W	04LICC57	09/15/04	09/29/04	09/29/04
NITRATE NITRITE	004	W	04LN3059	09/15/04	10/14/04	10/14/04
TOTAL DISSOLVED SOLI	004	W	04LSS183	09/15/04	09/22/04	09/22/04
TOTAL ORGANIC HALIDE	004	W	04LX018	09/15/04	09/21/04	09/21/04
B1B3V4						•
ALKALINITY	006	W	04LAKB31	09/15/04	09/27/04	09/27/04
BROMIDE BY IC	006	W	04LICB57	09/15/04	09/29/04	09/29/04
CHLORIDE BY IC	006	W	04LICA57	09/15/04	09/29/04	09/29/04
FLUORIDE BY IC	006	W	04LIC057	09/15/04	09/29/04	09/29/04
NITRITE BY IC	006	W	04LICB57	09/15/04	09/29/04	09/29/04
NITRATE BY IC	006	W	04LICB57	09/15/04	09/29/04	09/29/04
PHOSPHATE BY IC	006	W	04LICB57	09/15/04	09/29/04	09/29/04
SULFATE BY IC	006	W	04LICC57	09/15/04	09/29/04	09/29/04
NITRATE NITRITE	006	W	04LN3059	09/15/04	10/14/04	10/14/04
TOTAL DISSOLVED SOLI	006	W	04LSS183	09/15/04	09/22/04	09/22/04
TOTAL ORGANIC HALIDE	006	W	04LX019	09/15/04	09/27/04	09/27/04
TOTAL ORGANIC HALIDE	006 REP	W	04LX019	09/15/04	09/27/04	09/27/04
B1B3V6						
ALKALINITY	008	W	04LAKB31	09/15/04	09/27/04	09/27/04
BROMIDE BY IC	008	W	04LICB57	09/15/04	09/29/04	09/29/04
CHLORIDE BY IC	008	W	04LICA57	09/15/04	09/29/04	09/29/04
FLUORIDE BY IC	800	W	04LIC057	09/15/04	09/29/04	09/29/04
NITRITE BY IC	008	W	04LICB57	09/15/04	09/29/04	09/29/04
NITRATE BY IC	008	W	04LICB57	09/15/04	09/29/04	09/29/04
PHOSPHATE BY IC	800	W	04LICB57	09/15/04	09/29/04	09/29/04
SULFATE BY IC	800	W	04LICC57	09/15/04	09/29/04	09/29/04
NITRATE NITRITE	800	W	04LN3059	09/15/04	10/14/04	10/14/04
TOTAL DISSOLVED SOLI	008	W	04LSS183	09/15/04	09/22/04	09/22/04
TOTAL ORGANIC HALIDE	800	W	04LX019	09/15/04	09/27/04	09/27/04
TOTAL ORGANIC HALIDE	008 MS	W	04LX019	09/15/04	09/27/04	09/27/04
B1B3T6						
ALKALINITY	010	W	04LAKB31	09/15/04	09/27/04	09/27/04

Lionville Laboratory, Inc. INORGANIC ANALYTICAL DATA PACKAGE FOR TNUHANFORD B03-018 H2724

DATE RECEIVED: 09/18/04 LVL LOT # :0409L677

55,1	0,01				PATY TOT # :(140916//
CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BROMIDE BY IC	010	w	04LICB57	09/15/04	09/29/04	09/29/04
CHLORIDE BY IC	010	W	04LICA57	09/15/04	09/29/04	09/29/04
FLUORIDE BY IC	010	W	04LIC057	09/15/04	09/29/04	09/29/04
NITRITE BY IC	010	W	04LICB57	09/15/04	09/29/04	09/29/04
NITRATE BY IC	010	W	04LICB57	09/15/04	09/29/04	09/29/04
PHOSPHATE BY IC	010	W	04LICB57	09/15/04	09/29/04	09/29/04
SULFATE BY IC	010	W	04LICC57	09/15/04	09/29/04	09/29/04
NITRATE NITRITE	010	W	04LN3059	09/15/04	10/14/04	10/14/04
TOTAL DISSOLVED SOLI	010		04LSS183	•		09/22/04
TOTAL ORGANIC HALIDE	010	W	04LX019	09/15/04	09/27/04	09/27/04
B1B3T8						
ALKALINITY	015	W	04LAKB31	09/16/04	09/27/04	09/27/04
ALKALINITY	015 RE		04LAKB31	09/16/04	09/27/04	09/27/04
BROMIDE BY IC	015	W	04LICB57	09/16/04	09/29/04	09/29/04
CHLORIDE BY IC	015	W	04LICA57	09/16/04	09/29/04	09/29/04
FLUORIDE BY IC	015	W	04LIC057	09/16/04	09/29/04	09/29/04
NITRITE BY IC	015	W	04LICB57	09/16/04	09/29/04	09/29/04
NITRATE BY IC	015		04LICB57	09/16/04	09/29/04	09/29/04
PHOSPHATE BY IC	015	W	04LICB57	09/16/04	09/29/04	09/29/04
SULFATE BY IC	015	W	04LICC57	09/16/04	09/29/04	09/29/04
NITRATE NITRITE	015	W	04LN3059	09/16/04	10/14/04	10/14/04
TOTAL DISSOLVED SOLI	015		04LSS183	09/16/04	09/22/04	09/22/04
TOTAL DISSOLVED SOLI	015 RE		04LSS183	09/16/04	09/22/04	09/22/04
TOTAL ORGANIC HALIDE	015	W	04LX019	09/16/04	09/27/04	09/27/04
LAB QC:						
ALKALINITY	MB1	W	04LAKB31	N/A	09/27/04	09/27/04
ALKALINITY	MB1 BS	W	04LAKB31	N/A	09/27/04	09/27/04
ALKALINITY	MB1 BSI	D W	04LAKB31	N/A	09/27/04	09/27/04
BROMIDE BY IC	MB1	W	04LICB57	N/A	09/29/04	09/29/04
BROMIDE BY IC	MB1 BS	W	04LICB57	N/A	09/29/04	09/29/04
CHLORIDE BY IC	MB1	W	04LICA57	N/A	09/29/04	09/29/04
CHLORIDE BY IC	MB1 BS	W	04LICA57	N/A	09/29/04	09/29/04
FLUORIDE BY IC	MB1	W	04LIC057	N/A	09/29/04	09/29/04
FLUORIDE BY IC	MB1 BS	W	04LIC057	N/A	09/29/04	09/29/04

Lionville Laboratory, Inc. --INORGANIC ANALYTICAL DATA PACKAGE FOR TNUHANFORD B03-018 H2724

DATE RECEIVED: 09/18/04 LVL LOT # :0409L677

_CLIENT ID/ANALYSIS	_LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
						
NITRITE BY IC	MB1	W	04LICB57	N/A	09/29/04	09/29/04
NITRITE BY IC	MB1 BS	W	04LICB57	N/A	09/29/04	09/29/04
NITRATE BY IC	MB1	W	04LICB57	N/A	09/29/04	09/29/04
NITRATE BY IC	MB1 BS	W	04LICB57	N/A	09/29/04	09/29/04
PHOSPHATE BY IC	MB1	W	04LICB57	N/A	09/29/04	09/29/04
PHOSPHATE BY IC	MB1 BS	W	04LICB57	N/A	09/29/04	09/29/04
SULFATE BY IC	MB1	W	04LICC57	N/A	09/29/04	09/29/04
SULFATE BY IC	MB1 BS	W	04LICC57	N/A	09/29/04	09/29/04
NITRATE NITRITE	MB1	W	04LN3059	N/A	10/14/04	10/14/04
NITRATE NITRITE	MB1 BS	W	04LN3059	N/A	10/14/04	10/14/04
TOTAL DISSOLVED SOLI	MB1	W	04LSS183	N/A	09/22/04	09/22/04
TOTAL DISSOLVED SOLI	MB1 BS	W	04LSS183	N/A	09/22/04	09/22/04
TOTAL DISSOLVED SOLI	MB1 BSD	W	04LSS183	N/A	09/22/04	09/22/04
TOTAL ORGANIC HALIDE	MB1	W	04LX018	N/A	09/21/04	09/21/04
TOTAL ORGANIC HALIDE	MB1 BS	W	04LX018	N/A	09/21/04	09/21/04
TOTAL ORGANIC HALIDE	MB1	W	04LX019	N/A	09/27/04	09/27/04
TOTAL ORGANIC HALIDE	MB1 BS	W	04LX019	N/A	09/27/04	09/27/04



Analytical Report

Client: TNU-HANFORD B03-018 H2724

LVL#: 0409L677

W.O.#: 11343-606-001-9999-00

Date Received: 9-18-04

INORGANIC NARRATIVE

1. This narrative covers the analyses of 6 water samples.

- 2. The samples were prepared and analyzed in accordance with the methods checked on the attached glossary.
- 3. Sample holding times as required by the method and/or contract were met with the exception of Nitrate Nitrite that were analyzed past hold due to an analyst's oversight.
- 4. The results presented in this report are derived from samples that met LvLI's sample acceptance policy.
- 5. The method blanks were within the method criteria.
- 6. The Laboratory Control Samples (LCS) were within the laboratory control limits. The duplicate LCS for Alkalinity and Total Dissolved Solids (TDS) were within the 20% Relative Percent Difference (RPD) control limit.
- 7. The matrix spike recoveries for Bromide, Chloride, Fluoride, Nitrite, Nitrate, Phosphate, Sulfate, Nitrate Nitrite and Total Organic Halides (TOX) were within the 75-125% control limits.
- 8. The replicate analyses for Bromide, Chloride, Fluoride, Nitrite, Nitrate, Phosphate, Sulfate, Nitrate Nitrite, Alkalinity and TDS were within the 20% RPD control limit, however replicate analysis for TOX was outside the control limit that may be attributed to sample inhomogeneity.
- 9. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard copy package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Iain Daniels

Laboratory Manager

Lionville Laboratory Incorporated

njp\i09-677

The results presented in this report relate to the analytical testing and conditions of the samples upon receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 33 pages.

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR WATER SAMPLE ANALYSIS

	EPA /600	SW846	OTHER
Acidity	305.1		•
AlkalinityBicarbonateCarbonate	√ 310.1		
BOD	405.1	_	5210B (b)
Ion Chromatography:		-	
Bromide Chloride Fluoride	300.0	9056	•
Nitrate Nitrite Phosphate	300.0	9056	
Sulfate Formate Acetate Oxalate	300.0	9056	
Chloride	325.2	9251	
Chorine, Residual	330.5 (mod)	1	
Cyanide, Amenable to Chlorination	335.2	9010 B	
Cyanide, Total	335.2	9010B 9014	ILMO4.0 (e)
Cyanide, Weak Acid Dissociable			412 (a) 4500CN-I (b)
COD	410.4(mod)	1 No.	5220C (b)
Color	110.2	·	
Corrosivity by Coupon		1110(mod)	
Chromium VI	-	7196A	3500Cr-D (b)
Fluoride	340.2	 	4500-FC
Hardness, Calcium	215.2		
Hardness, Total	130.2		
lodide			ASTM D19P202 (1)
Surfactant	425.1		
/Nitrate-NitriteNitrateNitrite	353.2		
Ammonia	350.3		
Total Kjeldahl Organic Nitrogen	351.3		
Total Organic Inorganic Carbon	415.1	9060	
Oil & Grease	413.1	9070	
pH pH; paper	150.1	9040B _ 9041A	
Petroleum Hydrocarbons, Total Recoverable	418.1		
Phenol	420.1 420	0.2 9065 9066	
OrthoTotal Phosphate	365.2		4500-P B C
Salinity			210A (a) 2520 (b)
Settleable Solids	160.5		
Sulfide	376.1	9030B/9034 (•
ReactiveCyanideSulfide		Section 7.3 (901	49030B)
Silica	370.1		
Sulfite	377.1		
Sulfate	375.4	9038	
Specific Conductance	120.1	9050A	00 D10F()
Specific Gravity			D5057-90 213E (a)
Synthetic/Precipitation Leach	/-13	12	
Total Dissolved Suspended Solids	16012 _	3/	
Total Organic Halides	450.1	✓ 9020B	
Turbidity	180.1		
Volatile Solids:			
TotalDissolvedSuspended	160.4		
Other:		Method:	

Lionville Laboratory Incorporated

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

- U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.
- * = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

MB = Method or Preparation Blank.

MS = Matrix Spike.

MSD = Matrix Spike Duplicate.

REP = Sample Replicate

LC = Laboratory Control Sample.

NC = Not calculated.

A suffix of -R, -S, or -T following these codes indicate a replicate, spike or sample duplicate analysis respectively.

ANALYTICAL WET CHEMISTRY METHODS

- 1. ASTM Standard Methods.
- 2. USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020).
- 3. Test Methods for Evaluating Solid Waste (USEPA SW-846).
- a. Standard Methods for the Examination of Water and Waste, 16 ed, (1983).
- b. Standard Methods for the Examination of Water and Waste, 17 ed, (1989)/18ed (1992).
- c. <u>Method of Soil Analysis</u>, Part 1, Physical and Mineralogical Methods, 2nd ed, (1986).
- d. Method of Soil Analysis, Part 2, Chemical and Microbiological Properties, Am. Soc. Agron., Madison, WI (1965).
- e. USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis.
- f. Code of Federal Regulations.

INORGANICS DATA SUMMARY REPORT 10/15/04

CLIENT: TNUHANFORD B03-018 H2724 WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
	E88FF88=88FFF88288##		=======			
-002	B1B3V0	Alkalinity	130	MG/L	2.0	1.0
		Bromide by IC	0.25 u	MG/L	0.25	1.0
		Chloride by IC	23.1	MG/L	0.25	10.0
		Fluoride by IC	0.29	MG/L	0.25	1.0
		Nitrite by IC	0.25 u	MG/L	0.25	1.0
		Nitrate by IC	66.8	MG/L	0.25	10.0
		Phosphate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	36.0	MG/L	0.25	10.0
		Nitrate Nitrite	15.8	MG/L	1.0	50.0
		Total Dissolved Solids	330	MG/L	5.00	1.0
		Total Organic Halides	5.2 u	UG/L	5.2	1.0
-004	B1B3V2	Alkalinity	121	MG/L	2.0	1.0
		Bromide by IC	0.25 u	MG/L	0.25	1.0
		Chloride by IC	22.3	MG/L	0.25	10.0
		Fluoride by IC	0.34	MG/L	0.25	1.0
		Nitrite by IC	0.25 u	MG/L	0.25	1.0
		Nitrate by IC	65.0	MG/L	0.25	10.0
		Phosphate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	33.7	MG/L	0.25	10.0
		Nitrate Nitrite	15.3	MG/L	1.0	50.0
		Total Dissolved Solids	331	MG/L	5.00	1.0
		Total Organic Halides	5.2 u	UG/L	5.2	1.0
-006	B1B3V4	Alkalinity	126	MG/L	2.0	1.0
		Bromide by IC	0.25 u	· · · - • -	0.25	1.0
		Chloride by IC	17.4	MG/L	0.25	10.0
		Fluoride by IC	0.30	MG/L	0.25	1.0
		Nitrite by IC	0.25 u	MG/L	0.25	1.0
		Nitrate by IC	72.4	MG/L	0.25	10.0
		Phosphate by IC	0.25 u		0.25	1.0
		Sulfate by IC	37.4	MG/L	0.25	10.0
		Nitrate Nitrite	16.8	MG/L	1.0	50.0
		Total Dissolved Solids	355	MG/L	5.00	1.0
		Total Organic Halides	6.7	UG/L	5.2	1.0
-008	B1B3V6	Alkalinity	1.0 u	MG/L	1.0	1.0
		Bromide by IC	0.25 u	•	0.25	1.0
		Chloride by IC	0.25 u		0.25	1.0
		Fluoride by IC	0.25 u	MG/L	0.25	1.0

INORGANICS DATA SUMMARY REPORT 10/15/04

CLIENT: TNUHANFORD B03-018 H2724
WORK ORDER: 11343-606-001-9999-00

		-			REPORTING	DILUTION
SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	LIMIT	FACTOR

-008	B1B3V6	Nitrite by IC	0.25 u	MG/L	0.25	1.0
		Nitrate by IC	0.25 u	MG/L	0.25	1.0
		Phosphate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	0.25 u	MG/L	0.25	1.0
		Nitrate Nitrite	0.020u	MG/L	0.020	1.0
		Total Dissolved Solids	5.00 u	MG/L	5.00	1.0
		Total Organic Halides	5.2 u	UG/L	5.2	1.0
-010	B1B3T6	Alkalinity	121	MG/L	2.0	1.0
		Bromide by IC	0.25 u	MG/L	0.25	1.0
		Chloride by IC	24.1	MG/L	0.25	10.0
		Fluoride by IC	0.26	MG/L	0.25	1.0
		Nitrite by IC	0.25 u	MG/L	0.25	1.0
		Nitrate by IC	116	MG/L	0.25	50.0
		Phosphate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	34.5	MG/L	0.25	10.0
		Nitrate Nitrite	26.8	MG/L	1.0	50.0
		Total Dissolved Solids	392	MG/L	5.00	1.0
		Total Organic Halides	5.2 u	UG/L	5.2	1.0
-015	B1B3T8	Alkalinity	137	MG/L	2.0	1.0
		Bromide by IC	0.25 u	MG/L	0.25	1.0
		Chloride by IC	15.7	MG/L	0.25	5.0
		Fluoride by IC	0.28	MG/L	0.25	1.0
		Nitrite by IC	0.25 u	MG/L	0.25	1.0
		Nitrate by IC	21.3	MG/L	0.25	5.0
		Phosphate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	29.2	MG/L	0.25	5.0
		Nitrate Nitrite	4.9	MG/L	0.20	10.0
		Total Dissolved Solids	262	MG/L	5.00	1.0
		Total Organic Halides	5.2 u	UG/L	5.2	1.0

INORGANICS METHOD BLANK DATA SUMMARY PAGE 10/15/04

CLIENT: TNUHANFORD B03-018 H2724 LVL LOT #: 0409L677

----WORK-ORDER: -11343-606-001-9999-00

					REPORTING	DILUTION
SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	LIMIT	FACTOR

BLANK10	04LAKB31-MB1	Alkalinity	0.50 u MG/I		0.50	1.0
BLANK10	04LICB57-MB1	Bromide by IC	0.25 u	MG/L	0.25	1.0
		Nitrite by IC	0.25 u	MG/L	0.25	1.0
		Nitrate by IC	0.25 u	MG/L	0.25	1.0
		Phosphate by IC	0.25 u	MG/L	0.25	.1.0
BLANK10	04LICA57-MB1	Chloride by IC	0.25 u	MG/L	0.25	1.0
BLANK10	04LIC057-MB1	Fluoride by IC	0.25 u	MG/L	0.25	1.0
BLANK10	04LICC57-MB1	Sulfate by IC	0.25 u	MG/L	0.25	1.0
BLANK10	04LN3059-MB1	Nitrate Nitrite	0.020u	MG/L	0.020	1.0
BLANK10	04LSS183-MB1	Total Dissolved Solids	5.00 u	MG/L	5.00	1.0
BLANK1	04LX018-MB1	Total Organic Halides	5.2 u	UG/L	5.2	1.0
BLANK1	04LX019-MB1	Total Organic Halides	5.2 u	UG/L	5.2	1.0

INORGANICS ACCURACY REPORT 10/15/04

CLIENT: TNUHANFORD B03-018 H2724 WORK ORDER: 11343-606-001-9999-00

			SPIKED	INITIAL	SPIKED		DILUTION
SAMPLE	SITE ID	ANALYTE	SAMPLE	RESULT	AMOUNT	*RECOV	FACTOR (SPK)
****			======	****			******
-002	B1B3V0	Bromide by IC	10.4	0.00	10.0	103.6	2.0
		Chloride by IC	275	23.1	250	100.6	50.0
		Fluoride by IC	10.6	0.29	10.0	102.9	2.0
		Nitrite by IC	10.5	0.25u	10.0	104.6	2.0
		Nitrate by IC	319	66.8	250	101.1	50.0
		Phosphate by IC	10.2	0.25u	10.0	101.8	2.0
		Sulfate by IC	306	36.0	250	107.8	50.0
		Nitrate Nitrite	58.3	15.8	50.0	85.0	100
-008	B1B3V6	Total Organic Halides	51.0	0.0	50.0	102.1	1.0
BLANK10	04LAKB31-MB1	Alkalinity	97.7	0.50u	100	97.7	1.0
		Alkalinity MSD	99.4	0.50u	100	99.4	1.0
BLANK10	04LICB57-MB1	Bromide by IC	4.8	0.25u	5.0	96.4	1.0
		Nitrite by IC	4.86	0.25u	5.00	97.2	1.0
		Nitrate by IC	4.78	0.25u	5.00	95.6	1.0
		Phosphate by IC	4.7	0.25u	5.0	94.8	1.0
BLANK10	04LICA57-MB1	Chloride by IC	4.7	0.25u	5.0	94.4	1.0
BLANK10	04LIC057-MB1	Fluoride by IC	4.7	0.25u	5.0	94.4	1.0
BLANK10	04LICC57-MB1	Sulfate by IC	4.8	0.25u	5.0	96.2	1.0
BLANK10	04LN3059-MB1	Nitrate Nitrite	0.48	0.02u	0.50	96.2	1.0
BLANK10	04LSS183-MB1	Total Dissolved Solids	105	5.00u	100	105.0	1.0
		Total Dissolved Solids	105	5.00u	100	105.0	1.0
BLANK1	04LX018-MB1	Total Organic Halides	49.9	5.2 u	50.0	99.8	1.0

INORGANICS ACCURACY REPORT 10/15/04

CLIENT: TNUHANFORD B03-018 H2724 WORK ORDER: 11343-606-001-9999-00

BLANK1	04LX019-MB1	Total Organic Halides	48.4	5.2 u	50.0	96.8	1.0
*=====		*******	======			======	
SAMPLE	SITE ID	ANALYTE	SAMPLE	RESULT	AMOUNT	%RECOV	FACTOR (SPK)
			SPIKED	INTTIAL	SPIKED		DILUTION

INORGANICS DUPLICATE SPIKE REPORT 10/15/04

CLIENT: TNUHANFORD B03-018 H2724

WORK	ORDER:	11343-606-001-9999-00
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			SPIKE#:	L SPIKE#	2
SAMPLE	SITE ID	ANALYTE	%RECOV	*RECOV	%DIFF
======	*******			=====	=====
BLANK10	04LAKB31-MB1	Alkalinity	97.7	99.4	1.6
BLANK10	04LSS183-MB1	Total Dissolved Solids	105.0	105.0	0.00

INORGANICS PRECISION REPORT 10/15/04

CLIENT: TNUHANFORD B03-018 H2724 WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR (REP)
======			=======	========	======	=========
-002REP	B1B3V0	Bromide by IC	0.25u	0.25u	NC	1.0
		Chloride by IC	23.1	22.0	4.9	10.0
		Fluoride by IC	0.29	0.34	17.0	1.0
		Nitrite by IC	0.25u	0.25u	NC '	1.0
		Nitrate by IC	66.8	64.6	3.3	10.0
		Phosphate by IC	0.25u	0.25u	NC	1.0
		Sulfate by IC	36.0	33.6	اهي 6.9	10.0
		Nitrate Nitrite	15.8	15.0	6.9 5.2 Mp ^{16.22} al	50.0
-006REP	B1B3V4	Total Organic Halides	6.7	5.2 u	De 32.2	1.0
-015REP	B1B3T8	Alkalinity	137	139	1.6	1.0
		Total Dissolved Solids	262	277	5.6	1.0

Custody Transfer Record/Lab Work Request Page / of 2 Lionville Laboratory Use Only 04/09/ 677 FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS Client TNU HANFURD SAFE BO4-00 B03-018 2 2 2 Refrigerator # Liquid Est. Final Proj. Sampling Date #/Type Container Project # 11343 - 606 - 001 - 9999 -00 Solid 500 500 500 500 500 (110 40 Liquid Project Contact/Phone # ___ Volume Lionville Laboratory Project Manager 0J Solid HINU 2 HAUS Del Std TAT 30 Days **Preservatives** ORGANIC INORG NOB Date Due ____10/18/04 **ANALYSES** Date Rec'd 9/18/84 Pest/ PCB REQUESTED Lionville Laboratory Use Only Matrix MATRIX INSNA QC CODES: HEOO HTOX 左右 Date Time Lab Chosen Matrix MEDE Client ID/Description S - Soil Collected Collected (V) SE - Sediment SO - Solid MS MSD SL - Sludge NA Alsolay B1B3T9 (F) 7-15-04 W - Water 1102 001 O - Oil A - Air VO 002 DS - Drum DIAPIE V L (F) Solids 003 DL - Drum Liquids L - EP/TCLP spabilin 0914 Leachate 005 WI - Wipe X - Other V4 106 F - Fish 1 199/30/My V5(F) 0800 007 008 T5 (F) 1044 1 19150/pt DATE/REVISIONS: Lionville Laboratory Use Only 10/4/04 1. Per client/PM, SAF# = 803-018 Special Instructions: Run Matrix QC Tamper Resistant Seal was: Samples were: 1) Present on Outer 1) Shipped ____ or Hand Delivered _____ Package Y or N MED = As, Ba, Cr, Pb, Se, Sn, V, Zn Airbill # _ 2) Unbroken on Outer Package Y or N IC(1) = CL, FL, Br, NO2, NO3, SO4, PO4 2) Ambient or Chille 3) Present on Sample Y or N 3) Received in Good Condition S N 4) Samples 4) Unbroken on Sample Y or N Properly Preserved **COC Record Present** Received Relinquished Discrepancies Between Upon Sample Rec't Time Relinquished Received Date Time Samples Labels and Y or N 5) Received Within COC Record? Y or N ORIGINAL "COMPOSITE Cooler Holding Times 9-18-04 کون NOTES: Y or N Temp. _____ °C WASTE"

Lionville Labor			C	usto	dy Tra							REA		qu	les	L P	_	of D		- E	F	6- W	ONVILLE L	BORATOR	RYING.
Client	NU	Hanfe	vd.	B04	-007		:	Refrige	erator #		1						2	2		2	a	2	2	Ĭ	
Est. Final Pro								#/Type	Container	Liquid	G						P	P		1	P	P	P	G	<u></u>
Project #	_			,	I			жиуре	Container	Solid										end.		-33	(71I)		
Project Conta	ct/Pho	one #		UPS				- Volum		Liquid	40						510	500		500	500	209	200	500	20
Lionville Lab										Solid	100						Hus C	N/a	10.0	Hars		Hose		Kac	
ac		Del		TAT				Prese	vatives		HEL	ORC	ANIC						J. DRG	1	1 1	110		H2524	1
Date Rec'd _		·		Date Due _				ANAL' REQU	YSES ESTED	-	VOA	BNA	Pest/ PCB	Herb			mitals	Metal	S	TC AND	ALK	No	Tos	Tax	Ser.
MATRIX		T					Matrix	<u> </u>						Ţ	-	Lion	/ille La	aborat	ory U	se Onl	у	1			
CODES: S - Soil SE - Sediment	Lab ID		Clie	nt ID/Descri _l	ption	1	QC Chosen (✔)	Matrix	Date Collected	Time Collected	HTERR						6,050	eOro		rc(1)	TAUR	TN3N3	IMS	70X	
SO - Solid SL - Sludge							MS MS										316	٤		12	1-1	12		 }-)	-
W - Water O - Oil	011	BI	B 4	40				W	9-15-04	0850	3										-				1
A - Air DS - Drum	012		<u> </u>	41				11		0800	3														1
Solids DL - Drum	0/3	7	ل ر	<u> </u>					<u> </u>	1	3		1100									1 . 6%			1
Liquids L - EP/TCLP	014	BIE	337	7 (F)					9-16-04	0833							1	12	7961	114					-
Leachate WI - Wipe	0/5	7 1	. T	8						L	3					Sar		1		(1	1	1.1	1.	-
X - Other F - Fish		1 BIT	3 4 3	39					J-4	0730	3							1			-				1
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Special Instruc							DAT	E/REVISIO	ONS:									_			ille Lat	oratory			ant war:
me()=	45,1	Ba, Ci	r, Pb	, Se , S	sn ,V,Z	n			2									- 1 - 4) Shipp land D Airbill #	s were: ped — elivered —		1) P: 2) P:	amper Re Preser ackage Unbro ackage	nt on O Y or ken on Y or	outer N Outer
TC () = (Lip	Br, NO	3, NO	,Sou	, ^{Роч} , F	TL.			_ 4 _ 5 _ 6									_ 3	B) Rece Condition	eived in on Y phoses y Prese	Good or N / rved	4) S) Presei) Unbro ample :OC Re	Y o ken on Y or	or N N
Relinquishe	ed	Recei		Date	Time	Re	linquished by	1	Received by	1	Date	Т	ime		crepand						or N		pon Sa	mple R	

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COC Record? Y or N NOTES:

5) Received Within Holding Times Y or N

Cooler

Temp. _

PNNL SDG#	H272	:4		•	СНА	IN OF (COSTONIA DE ANADISIO REQUEST	B04-002-2
Collector [OURATEK	-,		: · - = · ·		Contact/Re	nuester Telephone No. MSIN FAX	1 of 2
SAF No.	MHALL					Dot Stew Sampling O		
B04-002 Project Title						Drs	Ice Chest No.	
ERDF SEPT 2004 Shipped To (Lab)	medical was stated	e two wa	an kanana ing sanjara ng	erys degit swaleetyk on likelijkatet		Method of	Shipment Bill of Lading/Air Bill No	re 3469
TMA/RECRA Protocol	de desemble (majorità) del tres	ental tres	entral constan	Salar (1970)		Govt Tru	Priority: 45 Days Offsite Property No.	30 2101
CERCLA POSSIBLE SAMPI	LE HAZARD	S/RE	MARKS				SPECIAL INSTRUCTIONS Hold Time Total Activity Exemptic	n: Yes 🗹 No
44 44		;	· 2					
Sample No.	Lab ID		Date	Time	No/Ty	pe Container	Sample Analysis	Preservative
B1B3T9 (F)		w		1102		nL G/P	ICP Metals - 6010TR (Client List)	HNO3 to pH <2
B1B3V0		w	175-0	1	3х40-гг	L aGs*	VOA - 8260A (TCL)	HCI or H2SO4 to pH <2 Cool 4C
B1B3V0		w		1-1-	1x500-	mL G/P	ICP Metals - 6010TR (Client List)	HNO3 to pH <2
B1B3V0		w		- 	1x500-	mL P	IC Anions - 300.0	Cool 4C
B1B3V0		w		 	1x200-	mL G/P	Alkalinity - 310.1	Cool 4C
B1B3V0	1	w			1x300	mL G/P	NO2/NO3 - 353.2	H2SO4 to pH <2 Cool 4C
B1B3V0	 	w			1x20-r	nL P	Activity Scan	None
B1B3V0	1	w		-	2x100	0-mL G/P	Gross Alpha	HNO3 to pH <2
B1B3V0		w			2x100	0-mL G/P	Gross Beta	HNO3 to pH <2
B1B3V0		w	 		1x125	-mL G/P	Carbon-14	None
B1B3V0		w	 	- 	4x100	0-mL G/P	lodine-129	None
B1B3V0	-	w	+		2x100	0-mL G/P	Radium -226	HNO3 to pH <2
Relinquished By Relinquished By Relinquished By	DE	0		1409 17/29 800	SE	P 1 5 2004 Date/Time Date/Time Date/Time	Received By Received By Received By Received By Received By Received By Received By Received By Received By Received By Received By Received By Received By Date/Time Date/Time Date/Time Date/Time Date/Time	atrix * DS = Drum Solid DI = Drum Liqui T = Tissue WI = Wine L = Liquid V = Vegetation X = Other
FINAL SAMP DISPOSITION		al Meth	od (e.g., Retu	rn to customer, p	er lab proc	edure, used in p	Disposed By Date/	Time

PNNL		i					CTICITION TO A TICE TO A TICE			C.O.C. #	D 0.4		$ \infty $
SDa #	H272	4			•	CHAIN OF	CUSTODY/SAMPLE AI	NALYSIS REQUEST				002-2	
SAF No.		-			1	Contact/Requestor		Telephone No.	MSIN	Page FAX	2 of	2	4
B04-002 Sample No.	1-1-10	1.	T	Т_	<u>_</u>	Dot Stewart		509-376-5056	WISH	FAA			
B1B3V0	Lab ID	w	9-15-0		ime 22	No/Type Container 1x250-mL G/P	Technetium-99			Preserv	ative UCI	to pH <2	
B1B3V0		w		1 /2		1x100-mL G/P	Total Uranium		-				
B1B3V0		w	 	- /	 	1x500-mL G/P	TDS - 160.1)3 to pH <2	<u> </u>
B1B3V0		w	 - - - - - - - - -	+-/		1x500-mL aGs*	TOX - 9020				Cool		
	<u> </u>	+-	 		<u> </u>						H2S Cool	O4 to pH <	<2
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Relinquished By Relinquished By	70 C	x_	9 10	- - - - - - - - - - - - - - - - - - -) 1(24	Date/Time 1 0: 25 Date/Time 3:00	Received By Fred San Received By Fed Exo	9/16/04 3:15 M Date/Time	SE SO SI. W O	Soil Sediment Solidge Water Oil Air	DS DI. T WI I. V X	= Drum S = Drum I = Tissue = Wine = Liquid = Vereta = Other	l iani
Relinquished By	FO	Ö		9/18/	bu	Date/Time	Received By	Date/Time					
FINAL SAMPL	E Disposa	l Meth		<u>•/ / U/</u>	omer, per	lab procedure, used in pro	ocess) Di	9-18-04 1115		Date/T	ime		
DISPOSITION	N							· · · · · · · · · · · · · · · · · · ·		Data 1			

C.O.C. # **PNNL** CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST B04-002-3 SDG# H2724 Page 1 of 2 Collector DURATEK Contact/Requester Telephone No. MSIN FAX Dot Stewart F. M. HALL SAF No. Sampling Origin HANFOW SITE 509-376-5056 B04-002 Purchase Order/Charge Code Project Title Ice Chest No. SINL 5/0 ERDE SEPT 2004 Temp. Shinned To (Lah) Method of Shipment Bill of Lading/Air Bill No. 7920 9058 2469 TMA/RECRA Govt Truck Protocol CERCLA Offsite Property No. Priority: 45 Days POSSIBLE SAMPLE HAZARDS/REMARKS SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes V No Sample No. Lab ID Date Time No/Type Container Sample Analysis B1B3V1 (F) Preservative W 1x500-mL G/P 9-15-04 ICP Metals - 6010TR (Client List) 1102 HNO3 to pH <2 B1B3V2 W 3x40-mL aGs* VOA - 8260A (TCL) HCI or H2SO4 to **B1B3V2** W pH <2 Cool 4C 1x500-mL G/P ICP Metals - 6010TR (Client List) HNO3 to pH <2 B1B3V2 W 1x500-mL P IC Anions - 300.0 Cool 4C B1B3V2 W 1x200-mL G/P Alkalinity - 310,1 Cool 4C B1B3V2 W 1x300-mL G/P NO2/NO3 - 353 2 H2SO4 to pH <2 B1B3V2 Cool 4C W 1x20-mL P **Activity Scan** B1B3V2 W 2x1000-mL G/P Gross Alpha HNO3 to pH <2 B1B3V2 W 2x1000-mL G/P **Gross Beta** HNO3 to pH <2 B1B3V2 W 1x125-mL G/P Carbon-14 None B1B3V2 W 4x1000-mL G/P lodine-129 None B1B3V2 W 2x1000-mL G/P Radium -226 HNO3 to pH <2 Relinquished By Date/Time / 400 Received By Date/Time Matrix * F. N. HALL FEOKL = Soil = Drum Solid Relinquished By Received By Fred Saras Date/Time Sediment = Dom Liqui SO = Solid Tissue Sludge = Wine = Water Relinquished By = Lionid ö Oil Vegetation = Other Relinquished By

Date/Time

FINAL SAMPLE

DISPOSITION

Disposal Method (e.g., Return to customer, per lab procedure, used in process)

PNNL					СН	LAIN OF (CUSTODY/SAM	IPLE AN	ALYSIS RE	OUEST	C.O.C.#	B04-002-3
SDG#	H272	4				!				<u> </u>	Page	2 of 2
SAF No. B04-002		-	······································		Cont	act/Requestor of Stewart			Telephone No. 509-376-5056	N	ISIN FAX	
Sample No.	Lab ID	•	Date	Time	No	Type Container	Sam	nic Analysis	1 307-376-3036		Preser	
B1B3V2	:		9-15-04	1102		50-mL G/P	Technetium-99					HCI to pH <2
B1B3V2		W	1		1x1	00-mL G/P	Total Uranium					HNO3 to pH <2
B1B3V2		W		1	1x5	00-mL G/P	TDS - 160.1					Cool 4C
B1B3V2		W	+	4	1x5	00-mL aGs*	TOX - 9020					H2SO4 to pH <2 Cool 4C
								•				
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Relinquished By	Pr	int _	Sign			Date/Time/900	Received By	Print	Sign	Date/Time		/atrix +
DUR	NEK	<u>م</u>	THE	Seel	2/	SEP 15 2004	FEDEX				S = Soil	•
Relinquished by		C		-	·	Date/Time	Received By Fred	Saras	e lich .	Date/Time	SF = Sediment SO = Solid SL = Shulge	DS = Drum Solid DL = Drum Linui T = Tissue WI = Wine
Relinquished By	<u> </u>		<u>~</u>	1// 4/ 6	, <u>, , , , , , , , , , , , , , , , , , </u>	Date/Time	Received By	.	9/16/04	Date/Time	W = Water O = Oil A = Air	l. = Liquid V = Vegetation X = Other
Relinquished By	- K/-	2	Danas	9/17	104	Date/Time	Received by		9/17/04	Date/Time		
	_/-e	<u> </u>	0		-04	1115	1. Venu	and	9-18-04	1118		
FINAL SAME DISPOSITION	LE Dispos	sal Meth	od (e.g., Return	to customer,	per lab _l	procedure, used in pr	ocess)	∪ Dispo	osed By		Date	/Time

PNNL		•					LIAI	N OF A	C.O.C. #	D04 000 4
# PAGE	H272	4						ut Of (CUSTODY/SAMPLE ANALYSIS REQUEST	B04-002-4
ollector R.T.	SICKLE			<u> </u>				Contact/Re		1 of 2 x
AF No. B04-002								Dot Stew Sampling O	ar	Α
oiect Title ERDF SEPT 200	4						i	7	Ts -SAWS-1484 Ice Chest No. SML 226 Temp.	
inned To (Lah) TMA/RECRA	A STATE OF THE STA	esta est est.	err easter c	S. C. Sector			e tem. page	Method of S	IBILAL SAUMAALE KILL NA	2001
otocol CERCLA					are Shreet	n New Y			Priority: 45 Days Offsite Property No.	00 2491
DSSIBLE SAMP	LE HAZARI	S/RE	MARI	KS					SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption	n: Yes 🗹 No 🗀
	·									
Sample No.	Lab ID	*	D	ate	Tir	ne	No/Type	e Container	Sample Analysis	Preservative
IB3V3 (F)		W	9-15	T-04	091	Y 1	x500-m	L G/P	ICP Metals - 6010TR (Client List)	HNO3 to pH <2
B3V4 -	·	W		1			x40-mL	aGs*	VOA - 8260A (TCL)	HCI or H2SO4 to
B3V4		W				1	x500-m	L G/P	ICP Metals - 6010TR (Client List)	pH <2 Cool 4C HNO3 to pH <2
B3V4		W					x500-m		IC Anions - 300,0	Cool 4C
B3V4		W				c	x 200 m - 9 -	L G/P /5~ d Y	Alkalinity - 310.1	Cool 4C
IB3V4		W		1			د نهرد د	L G/P サー/5-e y	NO2/NO3 - 353.2	H2SO4 to pH <2 Cool 4C
IB3V4		W					x20-mL		Activity Scan	None None
IB3V4		W		_ _		4-4-		nL G/P	Gross Alpha	HNO3 to pH <2
IB3V4		W	ļ				2x1000-r		Gross Beta	HNO3 to pH <2
1B3V4		W	-		ļ		x125-m		Carbon-14	None
1B3V4	ļ	W	ļ	_			1x1000-r		lodine-129	None
10014	I		<u></u>	<u> </u>		1	2x1000-r	TIL G/P	Radium -226	HNO3 to pH <2
R.T. SIC	KLE			Men				Time/403	If al IX	trix *
elinquished By	To St.	5	0	c	1/6	(οφ		Time	Received By Fred Saras Date/Time SF. = Serliment SO = Solid SI. = Slundge	DS = Drum Soli DL = Drum Lint T = Tissue WI = Wine
elinquished By	La	Sa	~~		1. 1 9 h	1104		/Time ここつ	Received by Date/Time W - Water O - Oil A - Air	I. = Liquid V = Vegetation X = Other
Relinquished By	Red E	P			9-19	8-04	Date	Time	Received By Date/Time	·
FINAL SAMPL DISPOSITION	E Disposal	Metho	d (e.g., i	Return to		<u> </u>		re, used in proc	ess) Disposed By Date/Ti	me .

FINAL SAMPLE DISPOSITION

PNNL SDQ4	H272	4					CUSTODY	/SAMPLE A	ANALYSIS RI	EQUEST			304-002	2 2
SAF No. B04-002					Contac Dot	ct/Requestor Stewart			Telephone No 509-376-50		MSIN	FAX		_
Sample No. B1B3V4	Lab ID	w	Date 9-15-04	Time 0914	No/T 1x250	voe Container mL G/P	Technetium-99	Sample Analysis				Preservat	ive HCl to pH <	
B1B3V4		w	1	1	1x100	mL G/P	Total Uranium			• .	·		HNO3 to ph	
B1B3V4		w			1x500	mL G/P	TDS - 160.1						Cool 4C	
B1B3V4		W	4	+	1x500	mL aGs*	TOX - 9020						H2SO4 to p Cool 4C	H <2
					·									
										·				
		1			'	<u> </u> 								
Relinquished By	(LE)					Pate/Time /408	Received By Fel E	Print	Sign	Date/Time	s -	Matr		
Relinquished By Relinquished By Relinquished By	The state of the s	2×0	9/	9/11	, (o-e	Date/Time Date/Time Date/Time	Received By		Sarao 9/17/04	Date/Time O 4:15 Date/Time	SE = SO = SL = W = O =	Soil Sediment Solid Sludge Water Oil Air	Dt. = Dm T = Tiss WI = Wir L = Lin	ne mid ectation
FINAL SAMPL DISPOSITION		Metho		9-18-04 o customer, pe	c	/005 cedure, used in pro		mong	9-18-04 Disposed By	Date/Time		Date/Tim		

PNNL						I							C.0	.C. #	
SDG #	H2724	4			(CHAIN	OF (CUSTODY/S	SAMPLI	EANALY	YSIS R	EQUEST		B	04-002-5
Collector R.T.														Page 1	of 2
Collector	SICKEE						Contact/Re Dot Stew	quester				Telephone No. 509-376-5056	MSIN	FAX	
SAF No. B04-002						S	ampling C	Origin Han B.	~1 5:1	P	1	Purchase Order/Char	ge Code		
Project Title								DTS-5AWS	- 11011	<u> </u>	1	ce Chest No. ERC	.00 .CCT	emp.	
ERDF SEPT 2004 Shipped To (Lab)						P	Method of		1187						
TMA/RECRA	said of some		or a second				Goyt Tru	ck				Bill of Lading/Air Bill	7920	0458	2480
CERCLA								Prio	rity: 45 Days			Offsite Property No.	ME15	126	
POSSIBLE SAMP	L e Ha<i>l</i>aki	US/KE	MAKKS				·		SPECIAL IN	STRUCTIONS	Hold	Time	Total Activity	Exemption:	Yes Mo
Sample No.	Lab ID	•	Date	Tir	ne	No/Type	Container			Sa	mple Analys	is			Preservative
B1B3V5 (F)		w	9-15-	vy 080	,0	1x500-mL	G/P	ICP Metals - 6010TF	(Client List)					<u></u>	HNO3 to pH <2
B1B3V6 _		W	1	1	,	3x40-mL	aGs*	VOA - 8260A (TCL)		· · · · · · · · · · · · · · · · · · ·					HCI or H2SO4 to pH <2 Cool 4C
B1B3V6		W				1x500-mL	G/P	ICP Metals - 6010TF	(Client List)			······································			HNO3 to pH <2
B1B3V6		W				1x500-mL	Р	IC Anions - 300.0				-			Cool 4C
B1B3V6		w				1x 200 -mL		Alkalinity - 310.1							Cool 4C
B1B3V6		W				1x 900 -mL	G/P	NO2/NO3 - 353.2		·					H2SO4 to pH <2 Cool 4C
B1B3V6		W				1x20-mL		Activity Scan					···		None
B1B3V6		W				2x1000-m	L G/P	Gross Alpha							HNO3 to pH <2
B1B3V6		W				2x1000-m	L G/P	Gross Beta		 					HNO3 to pH <2
B1B3V6		W				1x125-mL	. G/P	Carbon-14							None
B1B3V6	,	W	17			4x1000-m	L G/P	lodine-129							None
B1B3V6		W	I		1	2х1000-п	IL G/P	Radium -226							HNO3 to pH <2
Relinquished By R.T. \$1	CKLE Z			lgn		Date/		Received By Fel (X	Print	Sign		Date/Time	S = S	Matri oil	x * DS: = Drum Solid
Relinquished By	FD	£./		9 [16]	م.	Date/	Time US	Received By	Fred	Sarao 9/10	104	Date/Time	SE = 5 SO = 5 SL = 5 W = 1	iediment iolid Sludge Vater	DI. = Drum Lioni T = Tissue WI = Wine I. = Lionid
Relinquished By	J	چ	X	ا ا	امر	•	Time	Received By	S~	91,11	' '5 Φ	Date/Time		XiI Air	V = Vegetation X = Other
Relinquished By	F	<u>~</u> } {) -	9-	18-0	Date	7:\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Received By	and		18 OY	Date/Time			
FINAL SAMPI DISPOSITIO		al Metho	od (e.g., Re				re, used in pr	ocess)		Disposed By	,			Date/Time	

PNNL 8DG # 1	12724	ı,			(CHAIN OF	CUSTODY/SAMPLE A	ANALYSIS REQUEST		C.O.C. #	304-0		200
SAF No. B04-002			·			Contact/Requestor Dot Stewart		Telephone No.	MSIN	Page 2	of	2	
Sample No. B1B3V6	Lab ID	·w	Dat		Time	No/Type Container	Sample Analysis Technetium-99	509-376-5056		Preservati	ve	\dashv	T
B1B3V6		w	9-15	-3 9	0800	1x 10 0-mL G/P	Total Uranium				HCI to		
B1B3V6	-	w	 	\dashv	_	1×500-mL G/P	TDS - 160.1				HNO3	to pH <2	
B1B3V6	· · · · · · · · · · · · · · · · · · ·	w	 	\dashv		1x500-mL aGs*	TOX - 9020				Cool 40		
	· · · · · · · · · · · · · · · · · · ·	-	1		+	1000 1112 000	10A - 8020				H2SO4 Cool 40	to pH <2	2
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Relinquished By	Prin	192				Date/Time / 400	Received By Print	Sign Date/Time		Matri	x *		_
Relinquished By Relinquished By Relinquished By	TES	The state of the s) Jun		9/16/04	Date/Time P /0: 25 Date/Time Date/Time Date/Time		9/11/29 Date/Time 9/11/29	SE - SO - SL - W - O -	Soil Sediment Solid Sludee Water Oil Air	DS - DI T - WI - I V -	Drum So Drum Lie Tissue Wire Liouid Vegetatie Other	mii
	Fo	Q	E,	4	7-18-04	1005	Received By	P-18-04 /00 5					
FINAL SAMPLI DISPOSITION						lab procedure, used in pro		Disposed By		Date/Time	 ;		_

FINAL SAMPLE

DISPOSITION

Disposal Method (e.g., Return to customer, per lab procedure, used in process)

1005

Date/Time

NNL	مُ مِم ي					CH	AIN	OF C	CUSTODY/	SAMPLE	ANALYSI	S REQUEST	,	C.O.C.#	B04-	002-	6
SDG.# AF No. B04-002	HZIZ	4				Conta	ct/Reque	estor	· .		Telepi	none No.	MSIN	Page FAX	<u>2</u> of	2	1
Sample No. B1B3T6	Lab ID	•	Date	T	ime		VDe Con		·	Sample Analy		-376-5056			T		┵╌
B1B3T6		W	9-1504			1x25	O-mL G/F	P	Technetium-99				-	Preserv	HCI	to pH <2	
B1B3T6		W	1		1	1140	H-mL G/F	5.00	Total Uranium					-	HNC)3 to pH <	<2
31B3T6		w					-mL G/F		TDS - 160.1						Coo	14C	
31B3T6		w				1x50	0-mL aG	s*	TOX - 9020	· · · · · · · · · · · · · · · · · · ·			· · · · · · · · · · · · · · · · · · ·		H2S	O4 to pH	<2
				1					 		· · · · · · · · · · · · · · · · · · ·				Coo	14C	
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2	****	$\dagger \top$	•	1						<u> </u>					-		
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Relinquished By	Prin ICKLE	المرز '	Sign		-			٠ ا	Received By Fell & ×	Print	Sign	Date/Time		M	atrix *		
Relinquished By	,	7	191				P 1 5 Date/Time			Fred Sa	~~ >	Date/Time		Soil Sediment	DS DL	= Drum = Drum	
	Fo	€	Ex		91		P 10	ı	hear I.	1160 30	9116/04	3.40	SO SL	= Solid = Sludge	T WI	= Tissue = Wine	e
Relinquished By	Fas	A	~v~	C			Date/Time	e	Received By	کی۔	0/1/0	Date/Time	0	= Water = Oil = Air	I. V X	LiquidVegetOther	tation
Relinquished By	(P			· 		Date/Time		Received By	-0	-11-//	Date/Time	<u>.</u>				
FINAL SAMPL	F Dienosel	ر ا	od (e.g., Return		-18			05	1 - Neer		9-18-04	1005					
DISPOSITION	Disposal	MED	on (c.R.' Veimu	io cust	iomer, pe	a iao pro	xcoure, us	seu in proce	css)		Disposed By			Date/I	ime		_

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PNNL					~	ļ					Bi		C.O.C. #	-	002-8
SDG A	H27	24			CHA	AIN OF (CUSTODY/	SAMPL	E ANAL	YSIS R	EQUEST			B04-0	002-8
Collector	DURATEK F. M. HALL			******		Contact/Re	quester Dot 57		·	[7	elephone No.	MSI MSI	·	1 of	1
SAF No. B04-002						Sampling C	Origin Han Fo	MO S.	7×-	F	urchase Order/	Charge Code			
Project Title ERDF SEPT 2004	; :					07		H83		1	ce Chest No.	SMC SIC	Temp.		
Shinned To (Lab) TMA/RECRA			4 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	tin i yan ising	91	Method of	Shinment	Veluc	,	I	Bill of Lading/Ai	r Bill No.	92090	· - 8 -	2416
Protocol CERCLA		477 5	e tu de la este e espec	e e e e e e e e e e e e e e e e e e e				ority: 45 Day		(Offsite Property	No.	7-	200	7.51
POSSIBLE SAMP	LE HAZARD	S/RE	MARKS	<u> </u>				SPECIAL IN	NSTRUCTION	S Hold	Fime	Total Ac	tivity Exemptio	n: Yes	No L
:	•														
				<u> </u>		! !		<u> </u>						1	
Sample No. B1B440	Lab ID	w	Date	Time		ype Container mL aGs*	VOA - 8260A (TCL)			Sample Analysi	S			<u> </u>	ervative or H2SO4 to
B1B440 -		w	9-15-04	0850	1x20	mL P	Activity Scan							pH <	2 Cool 4C
		-	+	4								-		None	
		-					**							_	
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Relinquishe A PACT	FK Print		- Sign	<u> </u>		Date/Time/400	Received By	Print	Sig	1	Date/Time		Me	ıtrix *	
F. M. H		1	Sign	A		P 1 5 2004	FED EX			-		s	- Soil	•	= Drum Solid
Relinquished By	10 6		- /	,		Date/Time	Received By	Fred	Saras	_	Date/Time	SE SO	= Sediment = Solid	DI. T	= Drum Limi = `Tissue
Relinquished By	Fas 5	70	9/ /	6/00	10	Date/Time	Received By	<u>~~~</u>		9/16/04	3·15 Date/Time	SI. W O	= Slixtee = Water = Oil	ī.	= Wine = Liquid = Vegetation
	J.	16	(LLC)	9/1/109		3 t 60	4.9	مرع ا	9	41/04		Ä	= Air		= Other
Relinquished By	29	6				Date/Time	Received By) 	Date/Time				
FINAL SAMPL	E Disposal	Metho		-18-04 o customer, pe		cedure, used in pro	cess)	and .	9-18-0 Disposed I		15		Date/T	ime	
DISPOSITION				, p.			•	\		• .					

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PNNL SDG A	·						AIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						04-002	-9
Collector R.T.	SICKL	Ē	 			Contact/Requester				Telephone No.	MSIN	Page 1	of 1	_
SAF No. B04-002	:					- displace 110.					Charge Code 79 20			
Project Title ERDE SEPT 2004						DT.	5 - SAWS - F	184		Ice Chest No. ERC	0. ERC-99.055 Temp.			
Shinned To (Lah) TMA/RECRA				reservation of a constant	adam en a	Method of			· · · · · · · · · · · · · · · · · · ·	Bill of Lading/Air Bill No. 7920 0958 2480				_
Protocol CERCLA	• •	The production of the second s					Pric	ority: 45 Days		Offsite Property No.	1/20	0450	240-	
POSSIBLE SAMPI	LE HAZARD	S/RE	MARKS					SPECIAL INSTR	UCTIONS Hole	d Time	Total Activity	Exemption:	Ves V No	
				٠										
Sample No.	Lab ID	*	Date	Time	No/Ty	pe Container		J	Sample Analy	/sis			Preservativ	
B1B441		W	9.15-04	0800	3х40-п	nL aGs*	VOA - 8260A (TCL)						HCI or H2S	O4 to
B1B441		w		1	1x20-n	nL P	Activity Scan	· · · · · · · · · · · · · · · · · · ·					pH <2 Cool None	4C
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				11				·						
Relinquished By R.T. SI	Print CKLE	7			}	ate/Time 2004	Received By	Print	Sign	Date/Time		Matri	x *	· · · · · · · · · · · · · · · · · · ·
Relinquished By Relinquished By	\$ - Ex	9	9/10 Danco	91	0 : د ر	Pate/Time	Received By		Sara= \(\frac{9}{10} \)	Date/Time 3. \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	SO = So SL = Sh	diment lid udge ater l	Dl. = Dre T = Tiss Wl = Wis L = Lia	ne mid setation
Relinquished By	Fed	E		-18-09	6	Date/Time	Received By	escand	9-18-04	Date/Time				•
FINAL SAMPL		Metho	od (e.g., Return	to customer, pe	r lab proc	edure, used in pro	cess)	4	Disposed By			Date/Time	}	

INL				. (CHA	AIN OF C	USTODY/SAMPLE ANALYSIS REQUEST	B04-002-10
20G4	H27=	24					i i i i i i i i i i i i i i i i i i i	
R.T.SI	CKLE					Contact/Rec	Page Telephone No. MSIN F	1 of 1
No. 04-002						Sampling O	igin the Good Stre Purchase Order/Charge Code	
ect Title RDF SEPT 2004	-		:			77	Purchase Order/Charge Code 1 - 5 Aws - 484 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	
ped To (Lah) MA/RECRA						Method of		ce 2421
tocol ERCLA	a rate	el star	and a grade	er forest or of the	Ze transcri		Priority: 45 Days Offsite Property No.	20_249/
SIBLE SAMPL	E HAZARD	S/RE	MARKS				SPECIAL INSTRUCTIONS Hold Time Total Activity Exemp	tion: Yes 🗹 No 🗀
; ;								
Sample No.	Lab ID	•	Date	Time	No/I	ype Container	Sample Analysis	Preservative
B442		w	er < 15-64	oroo	3x40-	mL aGs*	VOA - 8280A (TCL)	HCI or H2SO4 to
B442 _		W	+	1	1x20-	mL P	Activity Scan	pH <2 Cool 4C None
1		- 1						
# (a)								
1 to 1 to 1 to 1 to 1 to 1 to 1 to 1 to								
and a contract of the contract								
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elippisted BSIC	KLE		Singn			Date/Time # 2/0 5	Received By Print Sign Date/Time Feel Ex	Matrix * DS = Drum Soli
elinquished By		0	_			Date/Time	Received By Fred Sara O Date/Time SF. = Sediment SO = Solid	DL = Drum Licu T = Tissue
elinquished By	2 20		<u> </u>	16/04	/6	Date/Time	Received By 9//6/07 2+: \SI. = Sludge W = Water O = Oil	WI = Wine I, = Liquid V = Vegetation
- :	Į.	S.)	9/17/04	.		Fed Exo 9/11/24	X = Other
elinquished By	$\bigcirc A'$	~		· ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' '	····	2: 20 A	Received By Date/Time	******

FINAL SAMPLE Disposal Method (e.g., Return to customer, per lab procedure, used in process)
DISPOSITION

Disposed By

Date/Time

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CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # B04-002-1

Collector R.T. SICKLE							Contact/Requester Dot Stewart				MSI		1 of 2
B04-002	04-002						Sampling Origin Harford 5: 4 Purchase Order/Charge Code DT6-5AU3-1484 Ice Chest No. 5M L 556 Temp.						
Project Title ERDF SEPT 2004							TK-SAWI-	1184	4	Ice Chest No. 5	21 556	Temp.	
Shinned To (Lab)							Shipment	110:		Bill of Leding/Ai	r Rill No		
_ITMA/RECRA							ck			Bill of Lading/Ai	70	127 726	38185
CERCLA OSSIBLE SAMPI	E HAZARI	S/REMA	RKS				Prio	ority: 45 Days	VICTIONIC	Offsite Property			·
• ••				·			·	SPECIAL INSTR	·	Hold Time	Total Act	ivity Exemption	: Yes M No
Sample No.	Lab ID	٠	Date	Time	No/Type (Container		<u> </u>	Sample A	Analysis			Preservative
B1B3T7 (F)		W 9.	110-04	وجوه	1x500-mL	G/P	ICP Metals - 6010TR	(Client List)					HNO3 to pH <2
B1B3T8		W	1		3x40-mL a	Gs*	VOA - 8260A (TCL)			·			HCI or H2SQ4 to
B1B3T8		w .		-1	1x500-mL	500-mL G/P ICP Metals - 6010TR (Client List)							pH <2 Cool 4C HNO3 to pH <2
B1B3T8		w			1x500-mL	x500-mL P						Cool 4C	
B1B3T8		w			1x260-mL	Scorer Alkalinity - 310.1						Cool 4C	
B1B3T8		w			1x300-mL	80°mL G/P NO2/NO3 - 353 2						H2SO4 to pH <2	
B1B3T8		w	1		1x20-mL								Cool 4C None
B1B3T8		w			2x1000-ml	. G/P	Gross Alpha						HNO3 to pH <2
B1B3T8		w	1-		2x1000-ml	. G/P	Gross Beta					· · · · · · · · · · · · · · · · · · ·	HNO3 to pH <2
B1B3T8		w	1-		1x125-mL	G/P	Carbon-14		•				None
B1B3T8		w	 		4x1000-ml	L G/P	lodine-129						None
B1B3T8		w	\downarrow		2x1000-ml	L G/P	Radium -226						HNO3 to pH <2
Relinquished By R.T. SIC Relinquished By Relinquished By Relinquished By	1	2/2	9	9/11/04	SEP 16 Date/I Date/I Date/I	2004 Time	Received By Received By Received By Received By		Sign ana = 9/17/0 9-18-04	Date/Time Date/Time Date/Time Date/Time Date/Time	SE SO SIL W	Matr Soil Sertiment Solid Sludge Water Oil Air	DS = Drum Solid DI. = Drum Lioui T = Tissue WI = Wine I. = Liouid V = Vegetation X = Other

PNNL

SDGA HR724

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C.#

B04-002-1

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Page 2 of 2

AF No. B04-002				·	Contact/Requestor Dot Stewart		Telephone No. 509-376-5056	MSIN FAX	Of Z
Sample No. B1B3T8	Lab ID	*	Date	Time	No/Type Container	Sample Analysis		D	
<u> </u>	-	W	9-16-09	233	1x250-mL G/P	Technetium-99	1:	Preservativ	HCI to pH <2
B1B3T8		W	1	7	1x100-mL G/P 500 /24	Total Uranium	1 6		HNO3 to pH <2
B1B3T8	:	W			1x500-mL G/P	TDS - 160.1	ь (,		Cool 4C
B1B3T8		w	—	-	1x500-mL aGs*	TOX - 9020		·	H2SO4 to pH <2
									Cool 4C
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Relinquished By	ICKLE	5	Sign		Date/Time /400	Received By Print	Sign Date/Time	Matrix	*
	UNLE	2				Feelex		S = Soil	
Relinquished By	-			- / /	Date/Time	Received By	Saras Date/Time	SF. = Sediment SO = Solid	DS = Drum Solid DL = Drum Linui T = Tissue
Relinquished By	fred '	74	<u> </u>	9/17/3	Date/Time	Received By	9/17/04 19:35	SI, = Sludge W = Water	WI = Wine I. = Liquid
-	1	1.0	· L	91,11	104 3:30	LS C	Date/Time	O = Oil A = Air	V = Vegetation X = Other
Relinquished By		7.00	1 40000	- 401	Date/Time	Received By	Date/Time	<u> </u>	· · · · · · · · · · · · · · · · · · ·
	f-il	يع		9-18-04		1- Xee 9-1	8.04 1005	•	
FINAL SAMPL DISPOSITION	E Disposa	Metho	od (e.g., Return	to customer, pe	er lab procedure, used in pro		osed By	Date/Time	

Lionville Laboratory Incorporated SAMPLE RECEIPT CHECKLIST (SRC)

CLI	ENT: THU HANFOLD	<u>.</u>	Date: 9-1	8-04
Purch	nase Order / Project# / D/ SOW# / Release #: 1304 - 002		ı	
LvL	I Batch #: 0409(677	·	Sample Custo	dian: V. Helsians
	NOTE: EX	PLAIN ALL I	DISCREPANCI	· · · · · · · · · · · · · · · · · · ·
1	. Samples Hand Delivered or Shipped	Сатті ет	FeD Es	790276492076 Airbill# _ 2102
2.	. Custody seals on coolers or shipping container intact, signed and dated?	É Yes	□ No	□ No Seals Comments
- 3.	Outside of coolers or shipping containers are free from damage?	□ Yes	□ No	
4.	All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible?	± Yes	□ No	
5.	Samples received cooled or ambient?	Temp 2	·4 °C	Cooler # 5ML 510 ERE 99058
6.	Custody seals on sample containers intact, signed and dated?	D Yes	□ No	□ No Seals
7.	coc signed and dated?	Q/Yes	□ No	
8.	Sample containers are intact?	D Yes	□ No	
.9.	All samples on coc received? All samples received on coc?	D/s	□ No	
10	. All sample label information matches coc?	DYES	□ No	•
11.	. Samples properly preserved?	Ø Yes	□ No	
12.	Samples received within hold times? Short holds taken to wet lab?	□ Yes	DNo Ie	Andows - NOZ, NOZ, PO
13.	. VOA, TOO TOX free of headspace?	□ Yes		ONIA Head space
14.	QC stickers placed on bottles designated by client?	□ Yes	□ No	DN/A
15.	Shipment meets LvLl Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy)	□Yes	DNo A	ee # 12, #13
16.	Project Manager contacted concerning discrepancies? name/date (or samples outside criteria)	ΛYes	□ No	□ No Discrepancies